

In This Issue—*Making Money Selling Winter Accessories*

# MOTOR AGE

Vol. L  
Number 23

PUBLISHED WEEKLY AT 5 SOUTH WABASH AVENUE  
CHICAGO, DECEMBER 9, 1926

Thirty-five Cents a Copy  
Three Dollars a Year

**Progress of dealer toward failure—too much factory volume pressure—foolish trades—too many second hand cars—**

**Progress toward success—quality in car—trades sensibly made—high second hand value—profit.**

*Edward S. Jordan*

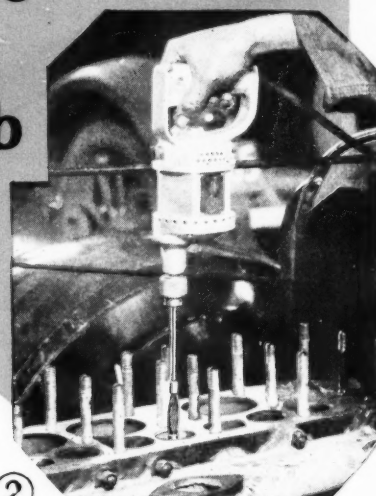
President  
Jordan Motor Car Company, Inc.  
Cleveland

# 5 steps

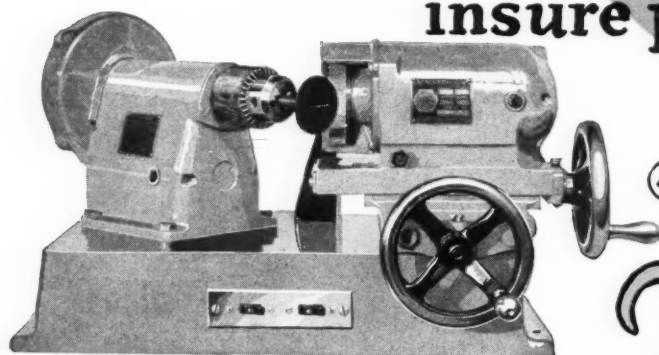
- 1 clean carbon
- 2 clean valve guides
- 3 reface valve seats
- 4 reface valves
- 5 test each valve to insure perfect job



① clean carbon



② clean valve guides



④ valve refacer

## The Black & Decker Method

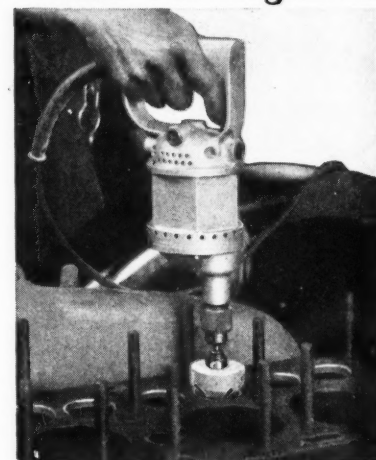
**1—Clean Carbon.** Black & Decker Carbon Removing Brushes revolving at high speed in the chuck of a Black & Decker Heavy Duty  $\frac{1}{4}$ " Electric Drill quickly and easily remove all carbon, leaving a burnished surface which does not readily collect carbon.

**2—Clean Valve Guides.** Black & Decker Valve Guide Cleaner rapidly rotated by the Black & Decker Heavy Duty  $\frac{1}{4}$ " Electric Drill removes carbonized oil deposit from the guides, leaving a burnished surface.

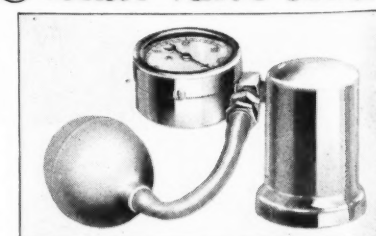
**3—Reface Valve Seats.** Black & Decker Valve Seat Grinding Stones, driven by the Black & Decker Heavy Duty  $\frac{1}{4}$ " Electric Drill, reface the valve seats so accurately that "lapping" is unnecessary, providing the valve itself is refaced accurately. These stones may be trued on the Black & Decker Electric Valve Refacer.

**4—Reface Valves.** The New Black & Decker No 45 Electric Valve Refacer (only \$120) is the surest way to reface valves. It is permanently set at a 45-degree angle, this being the angle used for valves on practically all cars, trucks and busses today.

**5—Test Each Valve.** After the valve and seat have been refaced the valve is dropped in its seat in the block. Valve spring is *not* used. The cup of the Tester is placed over the valve and held firmly with one hand and air pressure is pumped up by means of the rubber bulb. Any leakage of air past valve is immediately shown up by hand on gauge falling back. If valve is perfectly tight, indicator hand will hold steady.



③ reface valve seats



⑤ test each valve to insure perfect job

Complete Equipment for Cleaning Carbon and Grinding Valves by the "Black & Decker Method"

1 Black & Decker Engine Kit . . . . .	\$ 78.00
1 Black & Decker Electric Valve Refacer . . . . .	120.00
1 Black & Decker Valve Tester . . . . .	6.00
	<b>\$204.00</b>

Your Jobber can supply this equipment

**THE BLACK & DECKER MFG. CO.**

TOWSON, MD, U S A

Black & Decker Mfg. Co., Limited, Toronto, Ontario. Black & Decker, Limited, London, England

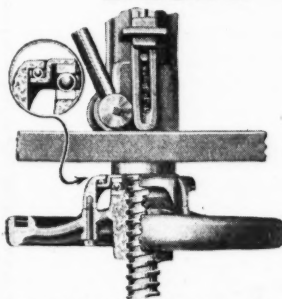


# New WEAVER 60 TON Hi-Speed Press

THE new Weaver 60-Ton Hi-Speed Press is designed to meet the rapidly growing need in most shops for a more powerful, quicker and more easily operated press to handle the heavier pressure work encountered in servicing trucks, buses and other commercial cars.

All the features which have made our lighter presses so popular—the same trouble-proof simplicity of construction—have been incorporated in this new press. And, in addition, the two outstanding new features described below which place this press in a class by itself—for ease and speed of operation, convenience and efficiency.

## More Speed and Power



Large balls take pressure on screw. Small balls take weight of hand-wheel and screw

Weaver engineers have worked out a new ball and thrust bearing construction and pitch of screw, as illustrated at the left, which afford far greater power and speed with much less effort.

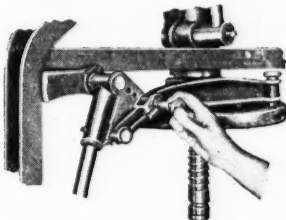
For example, 4 to 5 tons pressure can be developed with the hand wheel alone. With 3 or 4 additional strokes of the heavy duty lever in the lowest leverage, as shown below, 35 tons pressure can be secured. And, by using the two higher leverages, 60 tons can be reached in a few more strokes. This construction also permits extreme pressure on the screw to be relieved immediately by 2 or 3 reverse strokes of the lever, enabling screw to be quickly spun up.

A catalog describing this new Press and fifty other Weaver money-makers for your shop will be sent on request. Write for it today.

**WEAVER MANUFACTURING COMPANY**

Springfield, Illinois, U. S. A.

**WEAVER CANADIAN COMPANY, Ltd.**  
Chatham, Ont.

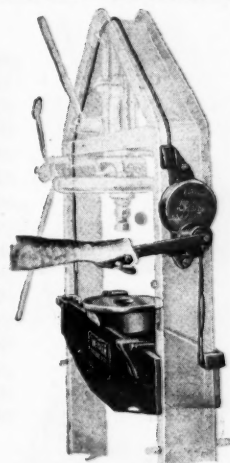


Three adjustments for heavy duty



## Easy to Adjust Bolster With New Hand Crank

The new crank mechanism shown at the right enables the operator to raise and lower the heavy bolster to the desired height quickly and with little effort. And—an unique safety feature—the bolster remains at the desired height for the operator to insert the supporting pins, without the need of retaining hold on the crank handle. If the operator forgets to insert the pins, pressure on the work will merely force it down, without danger of dropping it or breaking cable attached to bolster.



# "Substantial profits, satisfied owners, low service costs"

*is the experience of*  
**THE GLOSSBRENNER  
MOTORS COMPANY**  
LOUISVILLE

**J. E. Glossbrenner**  
*President*

Mr. Glossbrenner, who signs the letter on the right as President of his Company, also gives it as his opinion that the Stutz account is the very best in its class.

With fifteen years' experience as a Stutz distributor, he has surely had ample opportunity to know the standing of all cars in his market. So his words carry weight.

Dealers who want something better than the "old army game" in automobile selling are invited to write for the Stutz Dealers' Proposition.

**STUTZ MOTOR CAR CO.**  
of AMERICA, Inc., Indianapolis

Stutz Motor Car Co.,  
Indianapolis, Indiana.

Gentlemen:

This is our fifteenth year as Stutz distributors in this territory. It therefore goes without saying that the account is a satisfactory one to us.

Our relations with your organization have always been of the most pleasant and agreeable, due to your policy of fair play—and you have played more than fair with us always.

The New Safety Stutz is without doubt the best automobile the Stutz Company has ever built and by far the most salable.

We are enthusiastic about this New Safety Stutz and have a right to be, as aside from the substantial profits shown on our books, there is a satisfaction in selling this car that **we know** goes with but few cars.

The satisfied owners, low service costs, absolute freedom from faults or defects and consequent annoyances, wonderful performances, comfortable riding, low-slung, safety construction, everlasting noiseless rear-axle and too many other features to enumerate here, all go to make us think the Stutz account the very best in its class.

Yours very truly,

THE GLOSSBRENNER MOTORS CO.

*J. E. Glossbrenner*  
*President*



*New*  
**SAFETY STUTZ**

# MOTOR AGE

Reg. U. S. Pat. Office

VOL. I

No. 23

JULIAN CHASE, Directing Editor  
A. H. PACKER, Associate Editor  
C. EDWARD PACKER, Associate Editor  
JOHN C. GOURLIE, News Editor  
W. L. CARVER, Field Editor, Detroit  
L. C. DIBBLE, Detroit News Rep.

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TOM WILDER, Architectural Editor  
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C. A. MUSSELMAN, President and General Manager

J. S. HILDRETH, Vice-Pres. and Director of Sales

W. I. RALPH, Vice-Pres.

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J. H. COLLINS, Vice-Pres.

A. H. VAUX,  
Secretary and Assistant Treas.

H. J. REDFIELD,  
Treasurer

Cable Address: Motage, Chicago  
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## Easy to Use

"Remove the gas tank cap—  
Screw a TASCOS in its place."

These are all the directions for installation of TASCOS gasoline gauges. After this is done, you collect

**\$1.50, the retail price**

for types "K" and "J," which fit 1926 model "V" Chevrolets and Stars respectively. Both these have the Easy-On bayonet type connection.

The TASCOS which fit Fords and Overlands, retail at \$1.25.

## The Akron-Selle Company

"41 Years in Business"

Akron, Ohio

MAYDWELL & HARTZELL, INC.

Los Angeles

Pacific Coast Distributors

San Francisco



# To Discover the Difference in Rewound Armatures Try but *One* Fredericks Rewind

**A**N armature properly rewound is equally as good as a new armature. But it is no easier to rewind an armature properly than it is to build a good new armature.

Through this new light, thousands of armature buyers have switched to Fredericks Rewinds. Their first impression of *all* rewind armatures was changed by trying ONE Fredericks Rewind. Now, out of fairness, we ask you to try ONE Fredericks Rewind so you may discover the difference between these and ordinary rewind armatures. When you buy the next armature, try a Fredericks Rewind.

\* \* \* \* \*

Over five hundred armatures are re-

wound daily in the huge Fredericks plant at Lock Haven. Each armature requires more than fifty operations. Machinery, some designed and patented by us, speeds the work. As each operation is completed, careful tests eliminate all chance of failure. The men at work are skilled armature men. Note that just as in new armatures, both ends of a Fredericks Rewind are insulated—Plus value!

We cordially invite you to visit the Fredericks plant at Lock Haven at any time and view the operations. Then you too will be convinced Fredericks Rewinds alone come up to your quality standard. Meanwhile, have a Fredericks price list on hand. Mail the coupon now for a free copy.



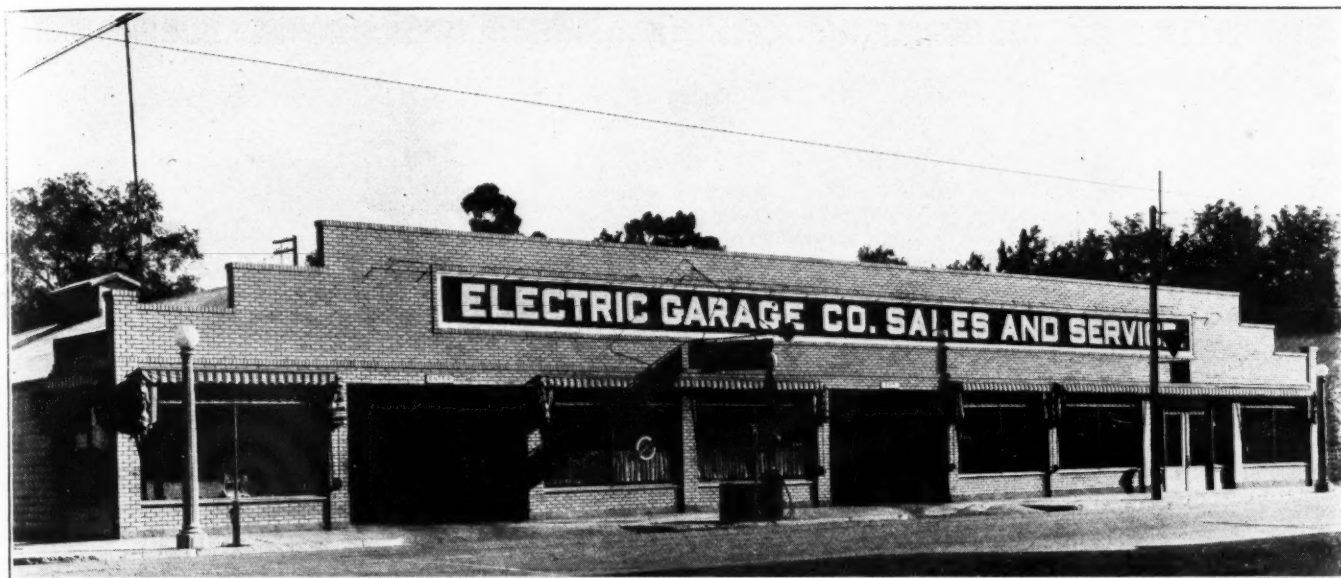
## FREDERICKS *Rewinds*

H. M. Fredericks Co., Lock Haven, Pa.

Gentlemen: Without obligation, send me the Fredericks booklet containing a complete price list.

Name.....Address.....

Company.....



Building owned and occupied by Roberts and Dahler today—the outgrowth of industry, ability and 16 years as Studebaker dealers

## Their Combined Capital Was A Kit of Tools



WILLIAM DAHLER  
H. E. ROBERTS

WOODLAND is a town of 4,147 population in the raisin grape vineyards of northern California. It was here in 1909 that William Dahler and H. E. Roberts opened a garage with a capital of \$7.50 worth of tools, and unlimited confidence.

"We repaired automobiles to the best of our ability," smiled Bill Dahler, "and we certainly knew how to polish brass.

"In 1910 a friend helped us to get the Studebaker franchise—and lent us enough money to purchase our first car. By 1912 we had grown so we built what looked like a palace to us, a garage 44 by 100 feet. Now our building is 132 by 190 and a lot next door, 44 by 190, is our open-air used car display.

"We now own our land and building in the center of Woodland's business district. We make a profit on the sale of new and used cars, as well as in our accessory, battery, electrical and machine shop departments. We are proud to have been Studebaker dealers for sixteen years.

"Studebaker is building better cars than ever before. We feel the future will be even more profitable than the past."

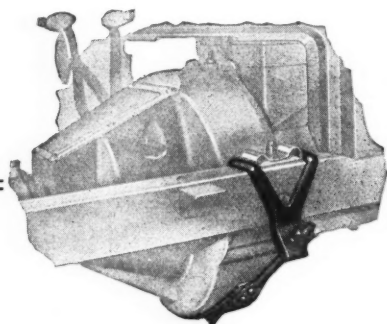
If Studebaker is inadequately represented in your locality, or not at all, write us today regarding the sales rights for your territory. Your inquiry will be held strictly confidential. Address Department 51, Studebaker Corporation of America, South Bend, Indiana.

# STUDEBAKER

**Pioneer Bill**

**Pioneer Bill**  
says:

"I ain't aimin' tuh play Santy Claus, but I can tell  
yuh how tuh increase yore Christmas sales o' the



- tightens Ford Chassis
- lessens Vibration
- prevents Broken Crankcase Arms
- sets Crankcase Arms already Broken
- cuts Repair Bills
- reduces Oil Leakage
- keeps Rivets and Bolts from Loosening
- gives Smoother Running Engine
- increases Riding Comfort

**Only \$3<sup>00</sup>**

## **Pioneer Engine Support**

(Trade Mark Reg. U. S. Pat. Office)

Send a neat little Christmas card to the wife of every Ford driver in your vicinity, telling her to include a Pioneer Engine Support with her husband's other Christmas presents, and attach one of our Pioneer Support circulars to the card.

These wives will be tickled pink to ride in a car that has a Pioneer Support around the flywheel housing. And you can wager that the husbands of these wives are going to get a lot more pleasure out of driving.

We'll furnish the folders to send out with your cards. Write for them, today.

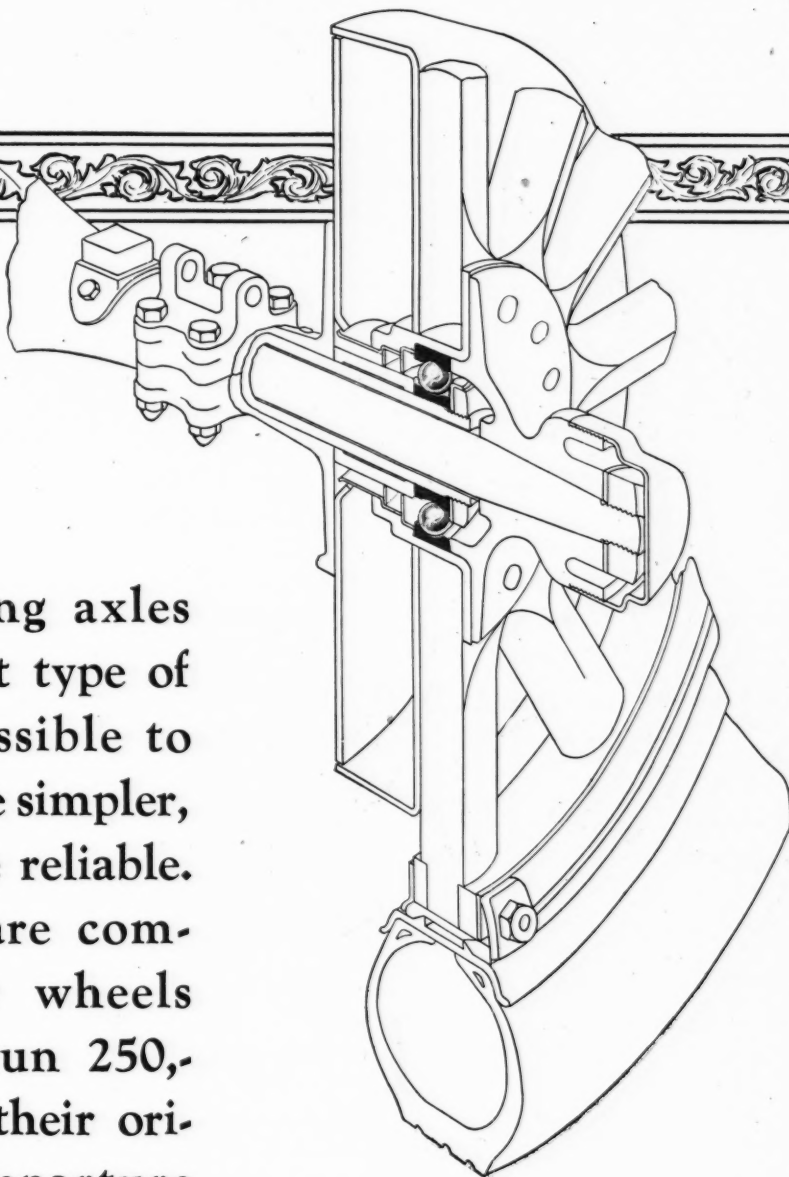
*Are you on our dealer list? If not,  
write today, for our attractive proposition.*

**THE BREWER-TITCHENER CORPORATION**

**108 Port Watson St.**

**Cortland, N. Y.**





Ball bearing axles are the highest type of axles it is possible to build. They are simpler, stronger, more reliable.

Instances are common of rear wheels which have run 250,000 miles on their original New Departure Ball Bearings.



**New Departure**  
Quality  
**Ball Bearings**



## Plus Europe

In America 91% of all car and truck manufacturers employ Timken Tapered Roller Bearings. Not merely some particular or peculiar production and sales conditions have brought this about—

Because throughout Europe, with conditions that are largely the opposite, Timken Bearings are also very widely adopted.

It cannot indicate anything but professional acceptance, as well as public acceptance of Timken engineering excellence, based on tapered design, *POSITIVELY ALIGNED ROLLS*, Timken-made steel, and great freedom from friction.

Only these bearing characteristics give Timken-equipped cars the economies of overstrength, consistent lightness, simplicity and smoothness. That is what the whole world emphatically appreciates about Timken Bearings.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

# TIMKEN *Tapered Roller* BEARINGS

# No Promise of Automobile Tax Relief by Congress

*Democratic Members of Ways and Means Committee, However,  
Vote to Make a Fight for Full Repeal of Federal Excise*

**W**ASHINGTON, Dec. 7.—Although President Coolidge has made it known that he is opposed to further reduction of the excise tax on automobiles at this time, and probably will so declare in his message to Congress which convened on Monday, the Democratic members of the Ways and Means Committee have unanimously voted to support complete repeal of the Federal excise taxes on automobiles.

The Democratic members of the Ways and Means Committee also authorized a special subcommittee to draft and prepare for introduction in the House a tax reduction bill which would relieve not only further payment of automobile excise taxes but which would reduce Federal taxes approximately \$350,000,000.

The action to support a tax reduction program was taken on motion of Representative William A. Oldfield of Arkansas. Representative John N.

"There is no authority, constitutional or otherwise, for linking Federal Aid with the excise tax. Federal Aid is a national policy inaugurated in the interest of the nation as a whole and not predicated at any time on the advantages it would secure or confer on particular classes or particular interests. The American Automobile Association has always contended and still contends that any curtailment of this vital national policy would be nothing short of disastrous.

"There is, however, no connection between the Federal Aid principle and the emergency excise tax placed on the car owners as a war measure and which still constitutes a huge toll on car owners, although the tax on every other form of transportation has been repealed."

Discussing the general tax reduction program in his message to Congress, the President said:

"At the end of the fiscal year there will be a surplus in the treasury of \$383,000,000. Unless otherwise ordered, such surplus is used for the retirement of the war debt. While I favor a speedy reduction of the debt as already required by law, there is no reason why a balanced portion of surplus revenue should not be applied to a reduction of taxation. . . . Millions of individuals and corporations are making a direct contribution to the national treasury which runs from 1½ to 25 per cent of their income, besides a number of special requirements, like automobiles and admission taxes. . . . If it were feasible, I should welcome permanent tax reduction at this time. This is not possible now. However, it is possible to grant some real relief by a simple measure making reductions in the payments which accrue on the fifteenth of March and June, 1927. . . . As I do not think any change in the special taxes, such as automobiles and admissions, or any permanent reduction is practical, I therefore urge both parties of the House Ways and Means Committee to agree on a bill granting the temporary relief which I have indicated."



President Coolidge



Thomas P. Henry, president  
American Automobile Association

Garner of Texas, ranking minority member of the committee, began work immediately on the bill, which would repeal all the so-called nuisance taxes and reduce corporation taxes from 13½ per cent to 11 per cent.

Strongly behind the demand for full repeal of the automobile excise taxes is the American Automobile Association and its affiliated motor clubs throughout the country. In a statement President Henry of the A. A. A. takes issues with the attitude attributed to administration leaders that the automobile tax should be continued because the Government is spending several millions of dollars annually in Federal Aid for highway construction.


"I am convinced that mature consideration of all the factors involved will lead the Administration to modify its position and to see the justice of the demand of the motorists for the immediate repeal of the Federal automotive tax, now that economies sponsored by the President have left an available surplus in the Treasury," Mr. Henry said.



# How Henry Marsh on Radiator Shutters

**HENRY L. MARSH & COMPANY**

SERVICE PARTS  
FOR ALL CARS  
WHOLESALE AND RETAIL  
CYLINDER REBORING  
MOTOR REBUILDING  
ACCESSORIES  
TIRES  
OILS



STORM LAKE, IOWA.

THE RADIATOR SHUTTER  
from the  
Motor Age Magazine

"In cold weather many automobiles run around powerfully fanning air through the radiator just as they would in midsummer. It is a most wasteful and thoughtless act. Heat is necessary to the efficient and satisfactory operation of the automobile engine. And the best operating temperature is much higher than atmospheric temperature even in the hottest weather."

"Most automobiles will run hot enough in winter after they are once heated up, but the heating up takes a long time while gasoline is being wasted and probably damage done to the bearings because of poor circulation of cold oil. A shutter to close the air passages through the radiator greatly reduces the time required for warming up."

"A good radiator shutter is a device that quickly pays for itself in the saving of fuel, oil and wear and tear on the engine."

May we install a good shutter on your car?  
Come in today and let us demonstrate both the hand controlled and the automatic shutter.  
Prices are very reasonable.

HAVE A SHUTTER ON YOUR RADIATOR THIS WINTER.

Sincerely yours,  
HENRY L. MARSH & CO.  
*H. L. Marsh*

P.S. You'll also want a heater. We have a dandy to fit your car at a reasonable price. And it sure will heat.

SALES PACKARD SERVICE  
"ASK THE MAN WHO OWNS ONE"

*The circular letter quoting a MOTOR AGE editorial that Henry Marsh used successfully to sell radiator shutters and heaters*

**T**O sell 21 radiator shutters and 19 car heaters at retail in nine business days in a town of 4000 population, with plenty of competition, is a pretty good merchandising accomplishment.

The story of how it was done by Henry L. Marsh, Nash and Packard dealer at Storm Lake, Iowa, constitutes a little lesson in the economics of success that many a larger dealer, as well as the smaller one, can well afford to study and emulate.

Here is the sales record:

Date	Heaters	Shutters
Nov. 1	1	2
Nov. 2	3	1
Nov. 3	1	3
Nov. 4	2	2
Nov. 5	2	4
Nov. 6	1	2
Nov. 8	3	3
Nov. 9	4	2
Nov. 10	2	2
Total	19	21

Mr. Marsh recognized that the approach of winter weather offered the opportunity to sell accessories to

*Using a MOTOR AGE  
Advertising, Iowa  
After Seasonable  
and Found*

protect the car and make the passengers comfortable. About that time a series of articles on selling seasonable accessories was running weekly in MOTOR AGE, and Mr. Marsh reads his business paper. He decided he would make a special effort to sell radiator shutters and car heaters.

Having made the decision he acted upon it. Using the mimeograph he ran off a circular letter on his regular letterhead quoting an editorial in MOTOR AGE on the value of a radiator shutter. He added a very brief selling appeal of his own, signed the letter then added a P.S. calling attention to the car owner's need of a heater.

This letter was sent to a list of about 100 owners of comparatively new cars. The letters were mailed so as to be delivered Monday morning, Nov. 1. The results are apparent in the table of sales given in the opening paragraphs.

Now we will let Mr. Marsh tell the rest of the story in his own words:

"The circular letter was mailed so as to be delivered on Monday morning to a list of 100 owners of comparatively new cars. The circulars were mailed out first class. We did not send out any follow up literature. All of our sales have been made as a result of this circular and demonstration of the item.

"Every car that has come in to our shop, not already equipped with a heater and shutter has been 'asked to buy.' In fact the year around we make it a point that every car owner that brings his car into our place is asked to buy some accessory he needs which he does not have.

"The writer does a certain amount of solicitation up and down the street. For instance, yesterday as I was walking along a car drove up to the curb and parked as I was passing. The driver waved to me and I stopped and greeted him with the suggestion.

"Better take a look at the new radiator shutters I have over at the store. You need one on your car.' Discussion followed and as a result he walked a block with me to the store where I demonstrated the shutter and sold it to him. This, to my mind, is the most effective follow up on circular advertising where it can be carried out.

"Competition is so keen in Storm Lake that you have to go out to get the business. The population is 4,000 and there are besides ourselves, 13 established garages, besides several small repair shops.

"There are a total of 21 places where a car owner can have repair work done. We have gone on the theory that equipment will aid materially in getting

# Cashed in and Heaters

*Editorial in His  
Dealer Went  
Accessory Sales  
That it Pays*



*The store of Henry L. Marsh at Storm Lake, Iowa. Note the timely accessory displays in the windows  
In circle: Henry L. Marsh, Nash and Packard dealer at Storm Lake, Iowa, who has been unusually successful in selling accessories*

the business and have been constantly adding to our equipment. We advertise, and do have the best equipped shop in this territory. We advertise the quality of our workmanship and that every job is guaranteed. We carry in stock the complete McQuay Norris line of pistons, pins, rings and bearings, Timken bearings, Bunting bushings, Thompson valves, Victor gaskets, Ramco inner rings, brake lining in all sizes, Vulco Cord fan belts in every size, ignition parts, etc. Our shop business is growing because the public is learning we have parts for their cars.

"Storm Lake has been named by one jobber's salesman, 'the city of garages' and I guess he is right. The fact that our business is constantly growing is because we are going out after it. There has been no price cutting on our part to get any business.

"We have been established since July 28, 1922. The writer came to Storm Lake at that time, just out of college and a total stranger.

"There are a lot of things about the business we have not yet learned and probably never shall. Some serious mistakes have been made but we trust that the experience they gave shall be of value in the future. We are going on the theory that our customers are always right and that our competitors are all good fellows, and we are having plenty of fun and hard work beating old man overhead and keeping the bank balance in black."

## Chassis Under Shower

PARIS, Nov. 24.—(By Mail)—An automobile chassis running under a shower bath is a demonstration being given on a Buick in General Motors showrooms on the Avenue des Champs Elysees, Paris. The chassis is complete, with gas in the tank, and has the exhaust led underground. A stream of water is directed from overhead on the entire mechanism, without apparently interfering in any way with its operation.

# Radiator Service

*Early Freezes Open  
Many a Leak That the  
Shop Is Called Upon to  
Repair, and Vibration  
and Accidents Add Their  
Quota*

**By C. EDWARD  
PACKER**



*Removing the upper tank  
by means of a gas torch*



*Testing for leaks  
with five pounds of  
air pressure*



## EQUIPPED FOR PROFIT Radiator Service

There are many small tools that are helpful or necessary in performing radiator service. Generally the shop air compressor with a suitable reducing valve can be made to supply the air for the torches and for testing. The testing and boiling tanks can frequently be made locally to good advantage.

Following are items of value in performing service on radiators.

Melting pot	Flux squirter
Melting ladle	Acetylene torch outfit
Pricking pliers	Tester for individual tubes
Needle nose pliers	Air paint sprayer
Fin tongs	Core clamps (2)
Wire and scratch brushes	Soldering iron gas furnace
Acid swabs (per doz.)	2 soldering irons, 1 lb.
Expanding stoppers per set of 18	2 soldering irons, 2 lb.
Cell scrapers	2 soldering irons, 4 lb.
Air line reducing valve	Soldering machine
Gas torch	

**“YES**, there are variations in the radiator repair business. Sometimes it is good and at other times it is better.”

These remarks represented the observations of a car dealer who had watched his radiator department for a number of years and who knew from his books that it was worth while.

“In summer there is a lot of heavy driving. Several hundred miles a day is not a high figure for many cars and this is frequently driven on roads that are none too good. Then too, there is the engine vibration that

works with the road vibration to develop radiator repair business. These things make business good.

“But in winter business is best. It just seems to be human nature to postpone buying alcohol until the radiator has frozen once. Then it is often too late.

“Add to this the periodic smash-up job—remembering that there are twenty million automobiles running around in the United States—and you will see why the fellow who prepares himself with the proper equipment and then goes after the business is sure of a good profit.”

On the basis of a passenger car registration of twenty million and radiator or radiator core replacements conservatively figured at only 3 per cent for the next year there would be 600,000 replacements. At an average retail price of \$12.50 this will be \$7,500,000 for material only. With labor figured in and the truck



# Brings Winter Business

and bus market considered there is every reason to believe that over \$10,000,000 will be spent in this kind of radiator service or replacement by the end of 1927.

Essentially, radiator repair work is a soldering job. This work, however, requires the ability to solder under many different

*A gas operated soldering iron. This tool has its use for many jobs similar to the one illustrated*

*THIRTEENTH article in the "Equipped for Profit" series.*

Clear water should then be run through the radiator with a hose until no more foreign matter appears in the drainings.

Lime deposits, such as are noticed in tea kettles, will not be dislodged by the cleaning method just described. To remove lime the procedure just outlined should be followed and then in addition it will be necessary to put about a quart of muriatic acid into the clear water with which the system has been filled and then operate the engine at the boiling point for from 20 minutes to half an hour.

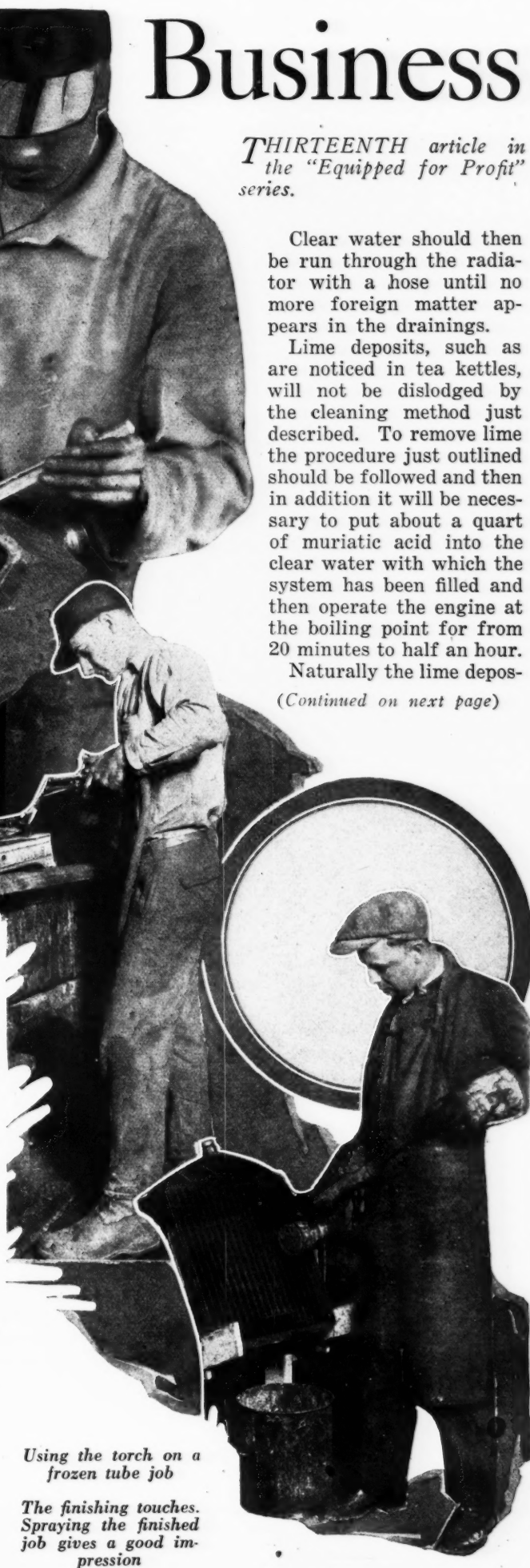
Naturally the lime deposits  
*(Continued on next page)*

and frequently difficult conditions. While methods of applying the solder may differ, the requirement for applying it, namely clean metal, is the foundation of success in radiator work. In addition to cleaning for soldering there are other cleaning operations that the radiator department can handle to advantage.

The first and most frequent cleaning operation that is required is that which removes the slime and scum from the tubes and tanks of the radiator and from other parts of the cooling system.

This deposit comes from impurities in the water, oil that may work into the cooling system as the result of a leaking cylinder head gasket, and other deposits that remain from some anti-freeze solutions and from certain kinds of anti-leak preparations.

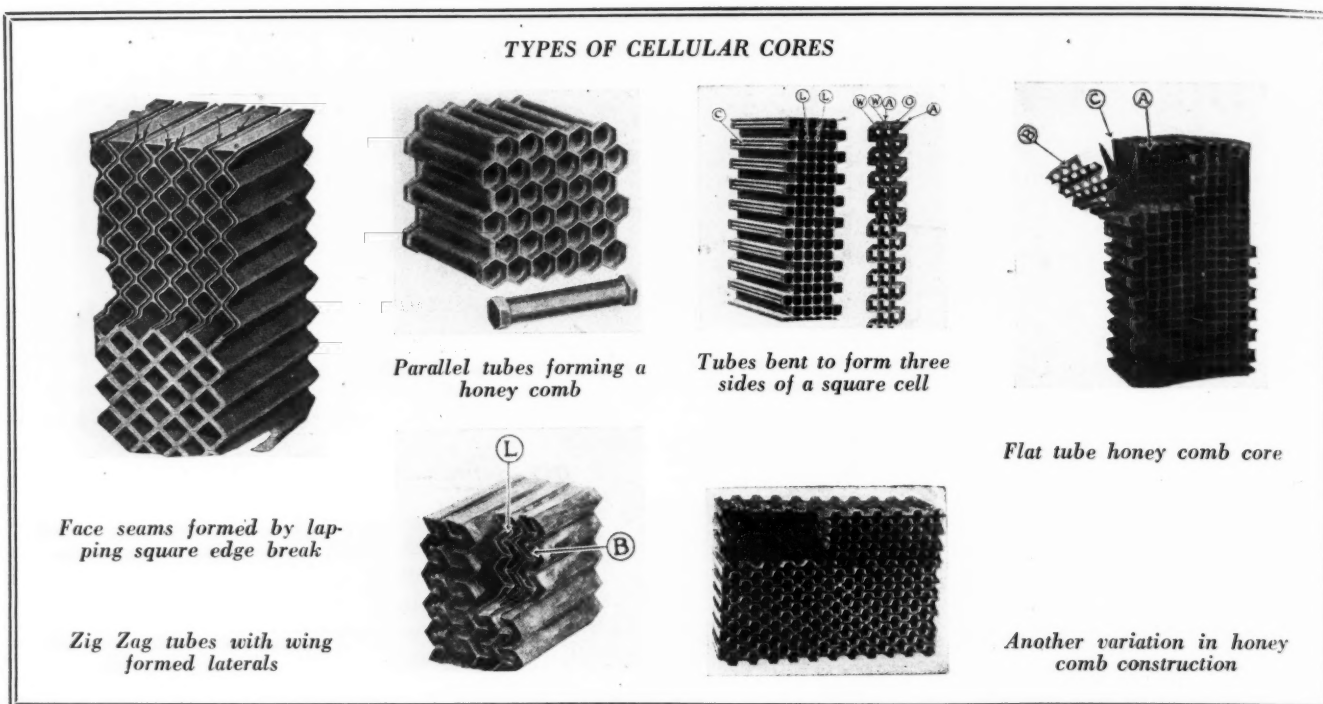
Most of these deposits can be readily removed without taking the radiator off, by simply dissolving a pound of sal soda or commercial metal cleaner in each gallon of water that the cooling system will hold and placing this solution in the system. The engine should then be run until the solution boils. After operating at the boiling point for about ten minutes the solution should be quickly drained out. This can be done by removing a lower hose connection.



*Using the torch on a frozen tube job*

*The finishing touches. Spraying the finished job gives a good impression*

## TYPES OF CELLULAR CORES



(Continued from preceding page)

its vary in thickness and consequently the time required to remove them will vary. It should be remembered that the acid will attack the metal of the radiator if allowed to remain in the system. Consequently the solution should be drained and flushed at the end of the half hour of operation, if not sooner.

Should there still be evidence of lime remaining the cleaning process should be repeated. When finished the system should be flushed with a soda solution to neutralize the action of any acid that may remain in cracks.

If the radiator is off of the car a stronger but cold solution of muriatic acid and water can be used to remove the lime deposits.

In an emergency a can of special anti-leak material may be a "life saver." The fact remains, however, that this material must be removed before a satisfactory soldering job can be done, and a permanent repair made.

Some of the different preparations that are used are flax seed, soap, grease, chewing gum, roofing cement, and in addition there may be lime, and paint that must be removed before the work of soldering can be undertaken.

**Flax Seed:** Flax seed or in fact any material of a vegetable base can best be removed by filling the inside of the radiator with a regular sewer cleaning compound obtainable at most plumbing shops and groceries. Recently some of these preparations have been put on the market and advertised as suitable for cleaning out drains in sinks, tubs, wash stands and the like.

**Soap:** The removal of soap can best be effected by the application of hot water. If soap has been placed inside the radiator the hot water must be circulated through the tubes and tanks. Should the application have been on the outside only and the soap is crusted between the fins and around the tubes much of it can be scraped away. The job can be completed by soaking the radiator in hot water.

**Grease:** Some owners resort to cup grease for stopping leaks. This material will be forced in between the fins and around the tubes. Boiling the radiator in a solution of lye, caustic soda, or regular commercial

metal cleaner will remove this material. This same treatment will also remove all paint.

**Chewing Gum:** When chewing gum has been applied to a leaking radiator the best procedure is to chill the gum and then crack it off. During the winter the radiator can merely be put outside for a short time to chill. If the weather is not cold it will be well to put cracked ice around the gum. This chilling makes it very brittle and relatively easy to chip and scrape from the radiator. Any gum remaining after that operation can be dissolved with gasoline. However, this makes quite a mess unless the quantity to be removed is very small.

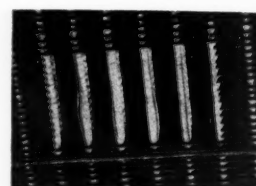
**Roofing Cement:** While roofing cement can be removed by the same methods that are used for removing gum the cement is generally found in much larger quantities. Much of this can be chipped or scraped off but it is usually necessary to soak the radiator in kerosene in order to get it thoroughly clean. To remove any oily film from the surface after this treatment it will then be necessary to give the radiator the lye, caustic soda, or commercial metal cleaner bath.

### Knowledge of Construction Vital

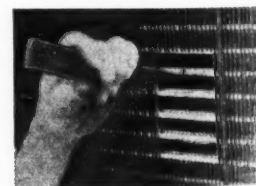
Before one can work effectively on a radiator it is necessary to be familiar with the construction. Possibly the best way to get acquainted with different designs is to get a number of different kinds of junk radiators and take them apart.

In general there are two types of radiators—tubular and cellular.

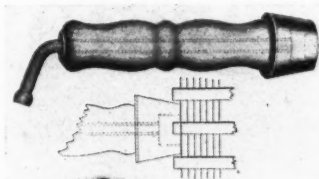
**Sprung seams.** These should be closed up before attempting to solder



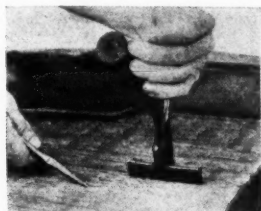
**Closing up sprung seams** in a tubular radiator prior to soldering



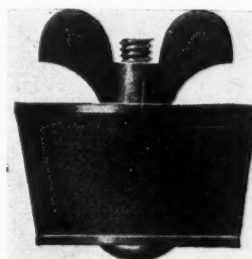




*A connection for testing individual tubes*



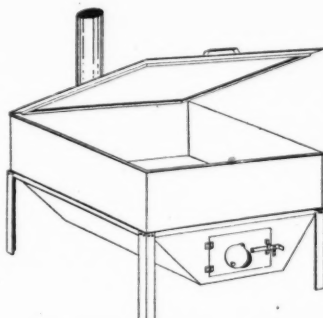
*Special straightening pliers for radiator fins*



*An assortment of expanding rubber stoppers speeds up radiator testing*



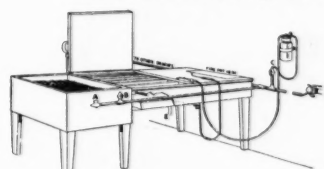
*The soldering machine shown here has many uses*



*A boiling tank for cleaning radiator*



*The use of false fins greatly improves the appearance of the finished job*



*A convenient lay-out for a radiator repair department*

Of the tubular construction there are but few varieties. There are the radiators with round tubes, either of drawn or seamed construction, and then there is the oval tube type.

Among the honeycomb varieties are variations too numerous to mention. Many of the different designs are illustrated.

It should be remembered that the only function of solder is to serve as a cement. It is expected to hold two pieces of metal together but should not be called upon to bridge a gap between them. In other words do not try to "putty" up holes by heaping on solder.

Before an attempt is made to repair leaks the radiator should first have all openings plugged and an air line with between 5 and 10 pounds of air should be attached to the overflow line. The radiator is then placed under water and the bubbles arising from the holes will indicate their location and approximate size.

It is considered that the radiator has already received the preliminary cleaning previously referred to. Now the metal in the immediate vicinity of the hole must be cleaned with flux and scrapers. After cleaning and applying flux the edges should be brought as close together as possible for soldering.

The flux most generally used is pure muriatic acid that has had as much pure zinc dissolved in it as it will consume. This is generally applied with a small brush, swab, or oil can to the part to be soldered and its action speeded up by applying heat to the part.

Should the flux dry in the seam to be soldered before

the solder has run in the solder will not take well. To retard the drying tendency of the flux some repairmen mix 5 parts of flux with 1 part of alcohol and 4 parts glycerine.

Regular commercial flux is generally considered to give a stronger joint and to be very slow to dry on the job—two decided advantages.

For soldering to iron parts such as hose connections, brackets and the like it is necessary to prepare the iron by heating it and applying raw muriatic acid.

In applying the solder the thing to remember is that whether an iron or a torch is used that the work should be heated and the solder melted into the work—not merely dripped on from the iron or torch. In running long seams the iron will move along the seam with the point trailing thus heating the seam in advance with the body of the iron and flowing solder into it from the point of the iron against which the bar of solder is being melted.

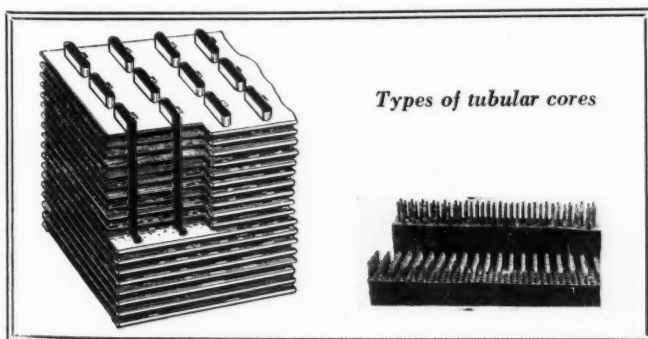
As many of the places to be soldered will be deep down in the tubes, cells, or fins, it is necessary that the torch selected be able to project a needle like flame that will not go out in such places. Also the flame must be concentrated in order that no damage will be done to nearby joints while making repairs.

In the case of the radiator repair beauty is but *fin* deep. The customer digging down for the price of the repair job will feel better about the bill if the radiator not only is good but looks it.

Fins should be straightened and burned ones should have false fins fitted. Then the entire job should be sprayed with a coat of lamp black mixed with japan, turpentine, or gasoline. The use of gloss paints is to be avoided, as they reduce the cooling efficiency of the radiator.

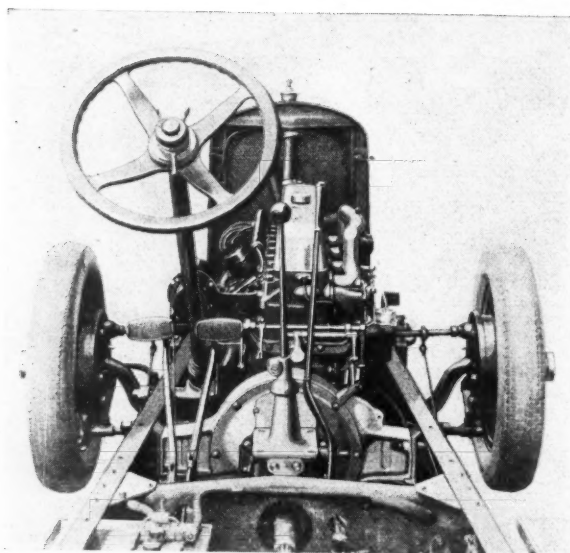
### Wins Sales Contest

ROCHESTER, N. Y., Nov. 20.—The Nash-Gates Company, Nash dealers, won the Nash-Buffalo summer sales contest with a record of 141 new cars in six weeks. The company emerged victorious in competition with Nash-Buffalo retail and all other Nash dealers in the territory, comprising 42 counties.



*Types of tubular cores*



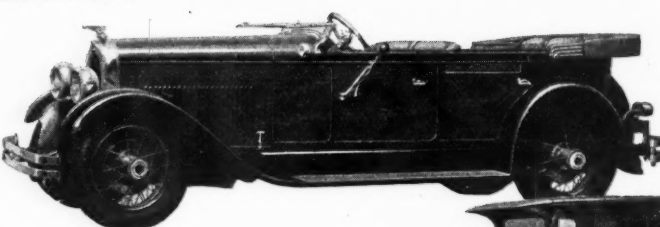


*Rigid four point suspension is used in mounting the engine. In this view note the heavy I beam and tubular cross members which stiffen the frame*

**C**RYSTALLIZING the results of five years' experimental work, and rounding out the Marmon line of fine automobiles, the Little Marmon at a recent demonstration at Indianapolis fully lived up to the expectations of those who came to see it perform. On the speedway it showed a speed of well over 70 m.p.h. and in second went more than 45 m.p.h. Other demonstrations over gravel roads showed exceptional roadability as well as acceleration and speed with unusual ease of control and good hill climbing ability.

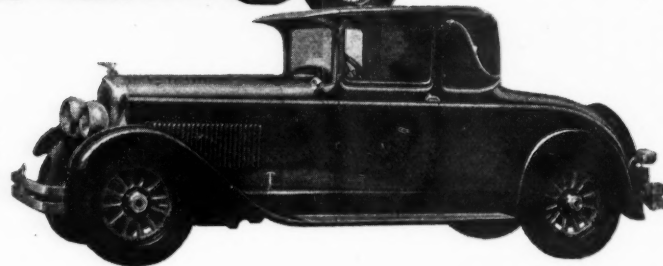
The engine, which develops 65 h.p. at 3300 r.p.m., has a capacity of only 190 cu. in., the bore and stroke being  $2\frac{3}{4}$  in. and 4 in., respectively, so that in addition to acceleration and speed it gives economy of from 18 to 22 miles per gallon. The rated h.p. is 24.2. This eight in line engine is of the overhead type and is completely made in the Marmon factory. Five main bearings support the crankshaft, which has a modulator at the front to damp out vibration. The light weight Lynite pistons with Invar struts further contribute to practically vibrationless operation, which is attained throughout the speed range.

The chassis has a wheelbase of 116 in. and is exceptionally low. Several factors affect and make possible the low



*The four passenger speedster lists at \$1895*

*The two passenger coupe, an attractive car in the Little Marmon line*



design of the car. One is the use of the Salisbury axles with hypoid gear type of differential, which lowers the propeller shaft. Another factor is the drop type frame and the adoption of 29 in. by 5.25 in. balloon tires, which are balanced to contribute to smooth high speed performance. In connection with the low center of gravity of this car, it is interesting to note that the head room has not been limited, being the same as in the big Marmon.

The six body styles available include a two door sedan at \$1795, a four door sedan, two passenger speedster, four passenger speedster and two passenger coupe, all at \$1895, and a collapsible coupe-roadster at \$1995. The two passenger speedster, two passenger coupe and collapsible coupe are each fitted with a rumble seat, which is operated

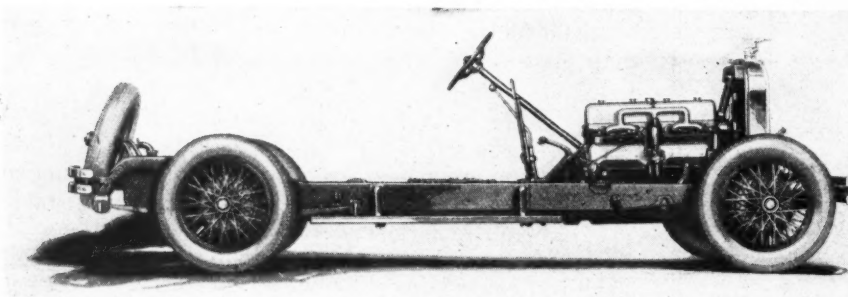
by a lever in the driver's compartment. The four door sedan is equipped with such features as toggle grips and also has a rear window that lowers to provide adequate ventilation. This last feature is one that should be especially appreciated in hot weather.

#### *Two Tone Finishes*

Two tone finishes are used, while interiors are trimmed with Laidlaw broadcloth in the closed cars and leather in the open models. The use of tufted billow type trim gives a fine appearance as well as enhancing the riding qualities. Wainscot panels, instrument board, cowl panel and window garnish moldings are finished in brown walnut grain, while the instrument panel is finished in burl walnut effect. This panel also has the Marmon coat-of-arms upon it. Interior hardware is of nickel and Butler silver. Interior lights are of novel design, giving maximum amount of illumination for reading. Leather covered smoking and vanity cases are included in some of the enclosed models.

The Little Marmon is thoroughly equipped. On the instrument panel, in addition to the conventional speedometer, oil gage and ammeter, there is an electric clock, which operates as long as there is a battery in the car. There is also an engine heat indicator and an electrically operated gasoline gage,

*Side view of chassis showing low hung frame*



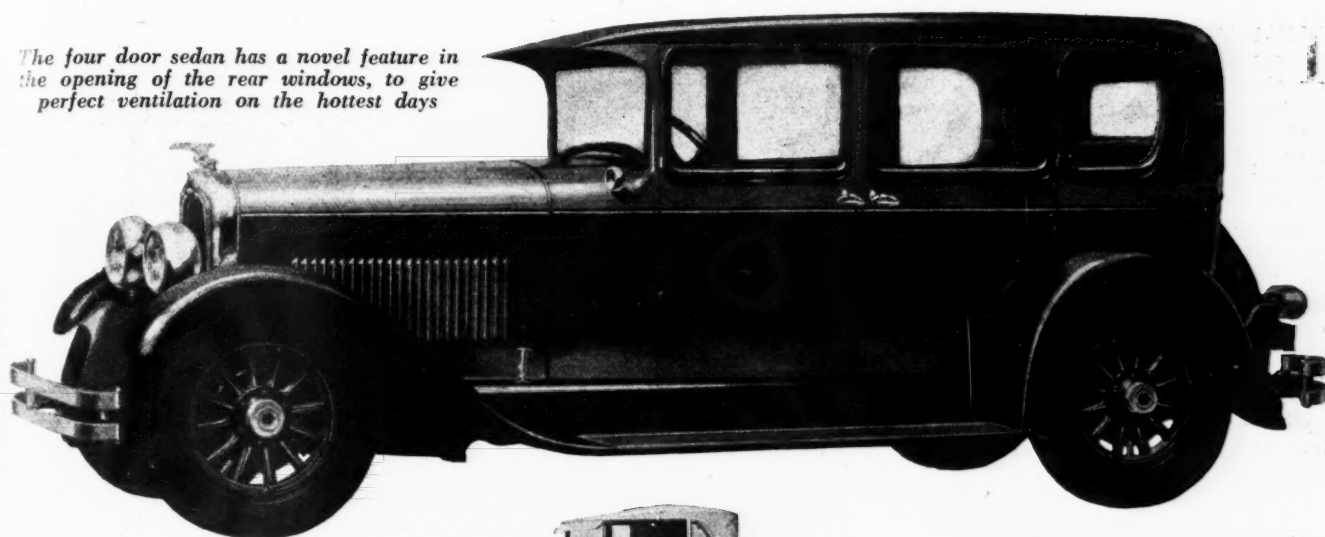
# "Little Marmon"

*Overhead Valve 190 Cu. In. Engine  
with Drive Through Hypoid Gear  
Rear Axle Gives Speeds Up to 70  
Miles Per Hour. Six Body  
Styles Available at Prices  
Ranging from \$1795 to  
\$1995*

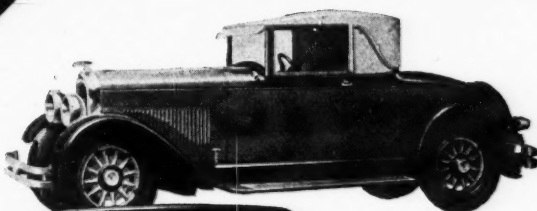
*By A. H. PACKER*

# Eight Is Introduced

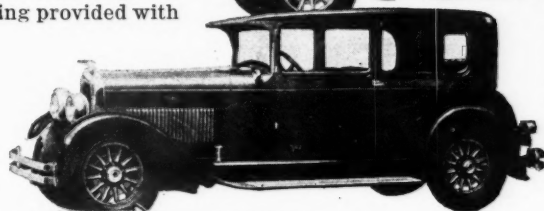
*The four door sedan has a novel feature in the opening of the rear windows, to give perfect ventilation on the hottest days*



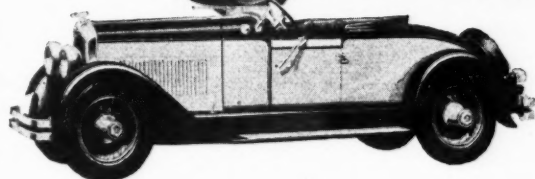
while the Marmon coat-of-arms embellishes the center of the panel. At the left is the Fedco number plate and at the right a cigar lighter, the latter being provided with a cord.



*The collapsible Coupe-Roadster priced at \$1995. It also has a rumble seat*



*The two door sedan at \$1795 is a car of striking appearance.*



*The two passenger speedster. A lever in the driver's compartment operates the rumble seat*

All locks are of the Yale pin tumbler type, a single key operating the locks on the different doors. There is also a transmission lock and tire lock, with deck and compartment locks on models requiring them. An automatic windshield wiper and two part rear vision mirror are included in the equipment, while a lever on the steering column operates the lights, which are of the depressable beam type.

Easy riding has been attained in the construction of the chassis. One factor is the use of Lovejoy shock absorbers, which are not only regular equipment but are built into the chassis so that they blend with the spring design to give the best possible riding action over rough roads. Springs are semi-elliptic and are held in rubber shock insulators, the rear springs having the drive bracket at the front, giving a Hotchkiss type of drive, while the front springs have the drive bracket at the rear. This construction gives the same general effect as is obtained when the front spring is shackled at the front and

reduces to a minimum the shimmying tendency caused on rough roads by spring deflection. Front springs are 38 in long, while the rears are 56 in., the width in each case being 1 3/4 in.

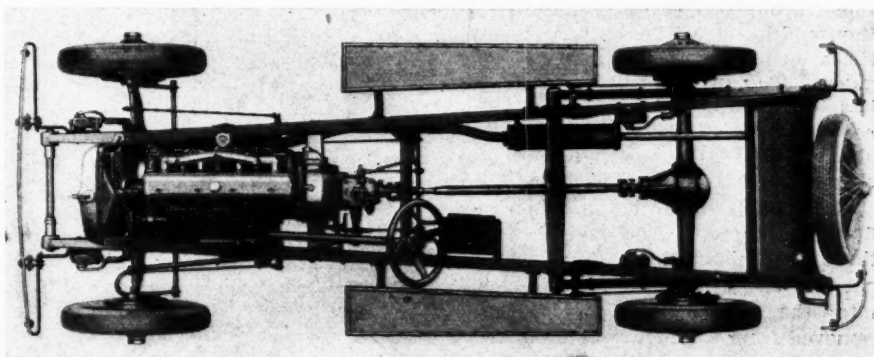
The steering gear is Ross cam and lever type. Clutch is a Rockford with single elastic plate, which gives very easy engagement. The transmission is

a Mechanics three speed type with ratios of 3.07 in low, 1.76 in second, 4.02 in reverse and direct for high speed. Rear axle ratios are 4.7 or 5.1. Brakes are four wheel Bendix type, with mechanical operation so designed that one brake becoming inoperative does not prevent the others from functioning. The emergency lever also operates the brakes on all four wheels. Twelve spoke wood wheels are used front and rear.

In the construction of the engine a novel feature has been incorporated, which should prevent the damage that sometimes occurs in starting up a cold engine, due to the fact that it takes an appreciable time for oil to reach the cylinder walls. A rectangular channel or oil duct is cut in the valve tappet assemblies which bolt against the cylinders and holes through the cylinders connect with this duct. When the starter pedal is operated, the action of the pedal is made to open a valve so that the regular oil pump will force oil to each cylinder. When the starter pedal is released, a spring closes this scuff valve so that the pistons and cylinder walls will not be overlubricated. The oil entering the cylinder in this

*(Continued on page 28)*

*Plan view of Little Marmon chassis. In this view the rubber cushions between the front and rear bars of the front bumper are clearly seen*



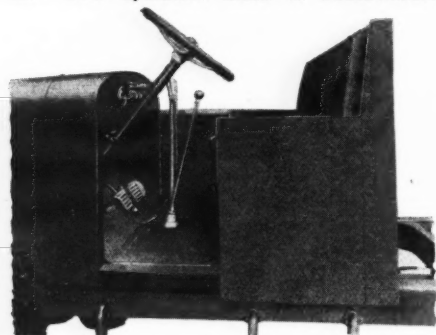


# Garford Introduces New 1½—2 Ton Truck

**I**NCREASED smartness of design and appearance, added speed, lower chassis height, and a driver's compartment that affords maximum comfort and convenience to the operator, are some of the features which are combined in the new Garford Model 30 1½ to 2 ton truck.

Principal among the items of design are a new and improved radiator design; a new adaptation of streamline design, extending through hood and cowl; crown fenders; and a low-set chassis, on smaller, pneumatic-tired wheels.

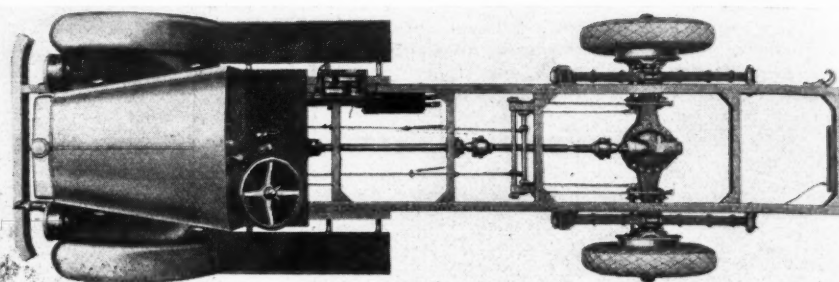
The power plant is rated at 25.6 h.p. Cylinder bore is 4 in. and stroke, 5¼ in. The cylinder head is removable.



*Above is shown the front compartment of the new Garford 1½-2 ton truck*

All four combustion chambers are machined.

Improved cooling efficiency is afforded by the use of a continuous fin-and-tube type radiator. A fan assembly, with vee-type belt, easily and quickly adjustable, and a centrifugal type water



*Plan view of new Garford 1½-2 ton truck*

pump, with balanced rotor and non-corroding parts, add further to cooling efficiency.

The transmission and clutch are built integral with the engine. The transmission has four speeds forward and one reverse, and is especially well adapted to extremely severe hauling conditions. All bearings are adjustable.

The rear axle drive is of worm and gear type. Lubrication is positive. The housing is oil-tight, sand and dust-proof.

Garford 30 design also embodies an exclusive and patented spring feature. The rear spring shackles have a three-point contact which, while interfering in no way with spring action or flexibility, insures greater protection against road shocks and also permits lower frame height.

The seat and back cushions are deep and the latter is set at an angle which affords maximum relaxation on long

trips. There is ample leg room and all controls are within easy reach.

An 18 in. notched steering wheel, and an improved irreversible screw-and-nut type gear, are used.

Other detailed specifications are as follows:

**Crankshaft**—Drop forged alloy steel, statically and dynamically balanced.

**Lubrication**—Force feed to all main bearings. Oil is also delivered to timing gear compartment. A pressure relief valve between pump and bearings insures uniform pressure.

**Frame**—Pressed steel, 6 in. channel section.

**Front Axle**—I-beam section, drop forged in one piece.

**Springs**—Semi-elliptic, 10 leaves front and 13 leaves rear. Alloy steel throughout.

**Wheels**—Metal (S. A. E. Standard).

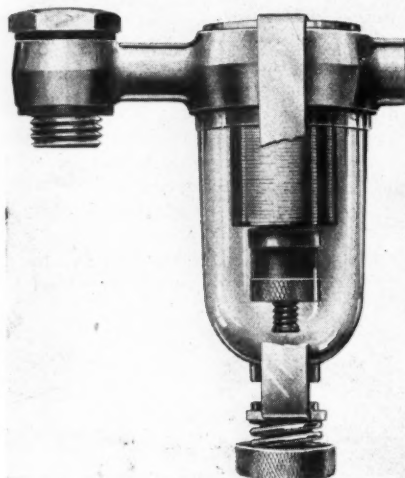
**Tires**—Pneumatic, 32x6 front and 34x7 rear. Solid tires optional, 34x4 front and 34x7 rear..

## Zenith Adds a Fuel Filter

**A**FUEL filter built on a new principle is being introduced by the Zenith-Detroit Corp. While filters are closely affiliated with carburetion, this marks the first time in the history of the corporation that it has deviated from the manufacture of carburetors.

The outstanding feature of the new Zenith filter is the fact that the filter unit consists of 200 thin brass washers and spacers, which filter the gasoline through openings of only 3½ thousandths of an inch which is three times as fine as the ordinary 60 mesh gauze. The use of gauze and leather has been entirely eliminated in the construction of the filter and it is claimed that the new type of filter element is practically indestructible.

Gasoline is admitted to the glass filter at the top. The fuel is sucked through the interstices of the washers, passing up through the filter element into the vacuum tank. Impurities removed from the fuel, such as dirt and



*The new Zenith fuel filter*

water, are washed away by the swirling motion of the gasoline while the car is in motion, and settle to the bottom of the glass container.

By removing a nut at the bottom of the filter the glass bowl can be removed for cleaning. The nut at the bottom of the element can also be removed and when the retainer is taken off, the washers and spacers can be shuffled up and down and can be thoroughly cleaned by shaking in gasoline or with compressed air.

## Organize at Canton, Ill.

CANTON, Ill., Dec. 4.—The Canton Automotive Trade Association sprang into being at a recent meeting of dealers. Fifteen firms are affiliated. Officers were elected as follows: President, Meade McClatchy; first vice-president, Guy Coleman; second vice-president, L. P. Shepherd; secretary-treasurer, J. C. Owens. It was voted to affiliate with the Illinois Automotive Trade Association. Secretary C. W. Coons and ten dealers, representing the state and Peoria associations assisted in launching the new body and also participated in the banquet that followed the business meeting.



# Six-Sixty Cabriolet Is Newest Moon Model



*Interior of Moon 6-60 cabriolet roadster showing how windshield is controlled with crank on cowl board*

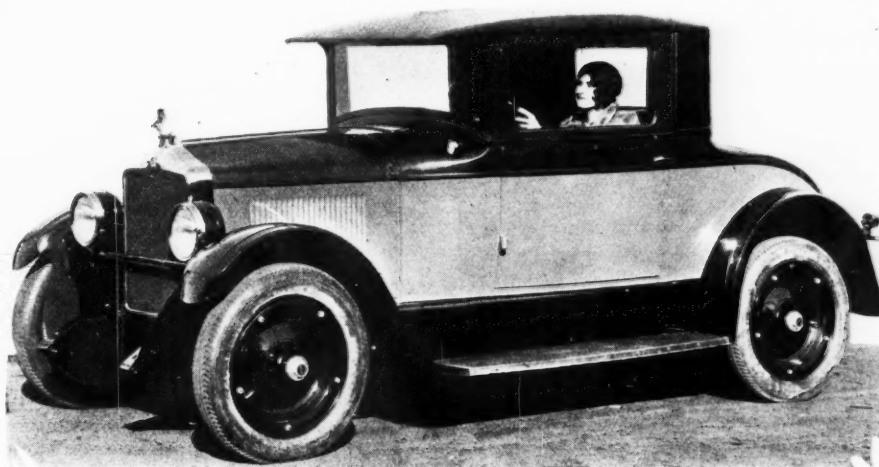
**T**HE Six-Sixty cabriolet roadster of 110 in. wheelbase is the latest addition to the Light Six line of the Moon Motor Car Company. It lists at \$1195 at the factory.

The Six-Sixty cabriolet roadster includes a number of new features, one of which is a one piece swinging type windshield operated mechanically by means of a crank located in the center of the cowl bar, the center mechanism being concealed in the cowl bar and front body pillars. Through the use of this device the windshield is always

rigid whether in the partly open or closed positions. The driver can open or close the windshield with a few turns of the crank handle.

Another special feature on this model is the sliding handle type of rear window regulator which differs from the conventional type. By moving the handle about six inches from left or right the rear window is opened or lowered. Both of these devices have recently been developed by the engineering de-

partment of the company. The Moon Six-Sixty cabriolet roadster is now available in a number of attractive color combinations, the most notable of which are, Rolls Royce blue; ocean blue and sea fog blue; Seattle blue, striped in straw color; ambatto green. The hardware is of Butler finish in the colonial style; upholstery is in gray leather; instrument board is walnut finished; all instruments are grouped under one glass oval indirectly lighted.



*The Moon 6-60 cabriolet roadster listing at \$1195*

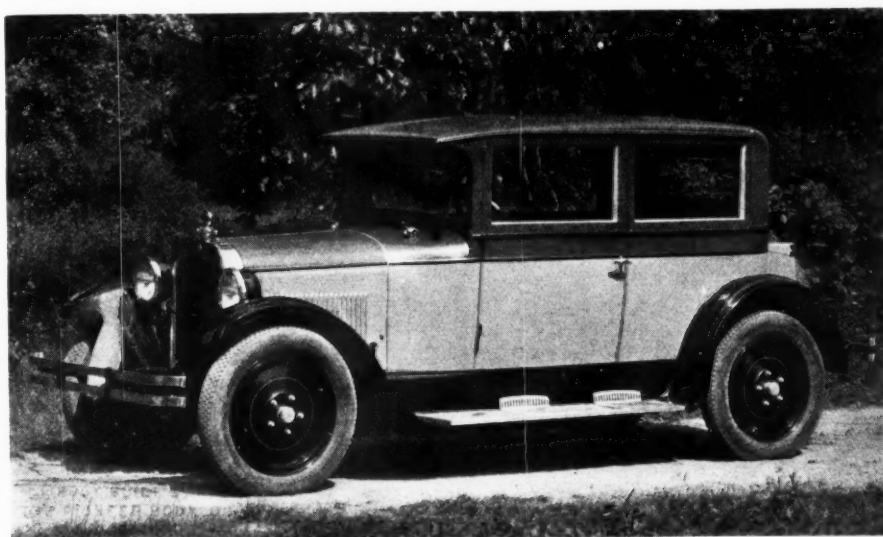
## Offers Four Passenger Coupe Body for Dodge Brothers Chassis

**T**HE Pioneer Body Company of Sidney, Ohio, is now building a new straight seat, four passenger coupe body for use on the Dodge Brothers chassis.

The coupe is finished in a two-tone lacquer color scheme of Argyle gray above streamline molding, and Cameron Heath below. The Argyle gray, or darker color, is carried above the streamline molding over entire back and top. The streamline molding is carried the entire length of body and over the hood to radiator. Window facings are finished with the lower body color or Cameron Heath.

For the interior trimming Mo-Velour is used, to harmonize with the exterior colors, being a cut pattern in the lower section below the belt molding and including the seats and back, while a plain steel colored silk velour is used above the belt and in the headlining. The whole interior is bound in blue-gray leather to match.

The beauty of the interior is increased by the addition of burl walnut finished garnish moldings and in-



*The Pioneer 4-passenger coupe body on Dodge Brothers chassis*

laid panels on doors and windows. The newest type hardware is used, with the combination remote door lock control and pull-to-handle. The dome light with switch attached, window regulator handle, and door lock handle, all have a beautiful engraved pattern.

A few of the other appointments are:

Special designed windshield, swinging outward and operated by a small crank at top of shield, which eliminates all fixtures on the windshield posts, cowl lights, generous size trunk on rear finished to match the body, twin rear vision mirror and automatic windshield wiper.

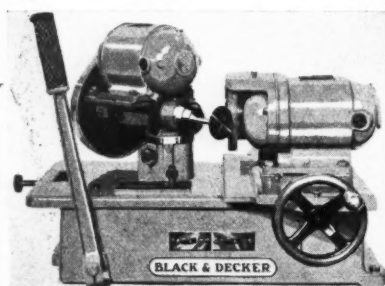
# NEW TOOLS FOR SHOP WORK

## Standard "Rotor" for Fords

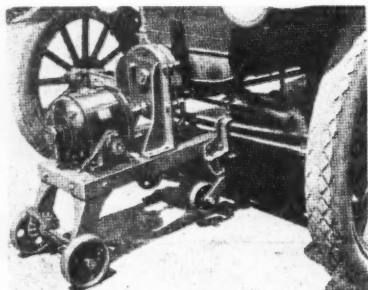
It is said the "Standard Rotor Machine for Ford Cars" will do a complete "run-in" job in three or four hours at a cost much less than when "running-in" by the old methods. The Ford "Rotor" may be attached to the car in three minutes and the manufacturers say it may be used on both new and repair jobs with equal economy. This is a product of the Rotor Engineering Works, 2835 Northwestern Ave., Chicago, and it is priced at \$125. The company also lists a Universal Rotor for all cars at \$175, a burning-in machine for Ford cars at \$225 and special Rotors for large trucks, prices on application.

## No. 90 Valve Refacer

An all-purpose valve refacer with work head adjustable from zero to 90 deg. has been put on the market by Black & Decker Mfg. Co., Towson, Md. It is designated as No. 90 Electric Valve Refacer. This is a heavy duty machine with adjustable work head permitting refacing of poppet valves of any required angle. There are two motors, one driving the work head and one the grinding wheel. Each motor has its own switch. The work head and grinding head operate on V-slides, being clamped tightly to the slides. Both heads have three-point suspension. Equipped with universal motors the price for all voltages is \$185.



No. 90 Valve Refacer



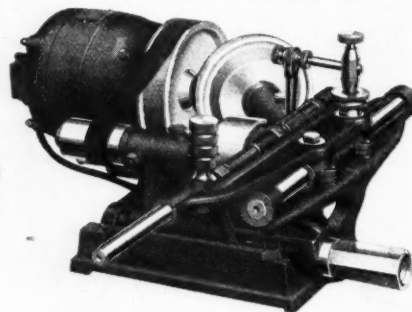
Standard "Rotor" for Fords

## No. 45 Valve Refacer

Black & Decker Mfg. Co., Towson, Md., has a valve refacer which is equipped with universal motors, one motor driving the work head, the other the grinding wheel. It is called the No. 45 Electric Valve Refacer. The work head of the machine is permanently set at a 45 deg. angle in view of the fact that nearly all car, truck and bus engines have 45 deg. valves. The grinding head is mounted on dovetail slides with automatic take-up on the gibs to compensate for any wear. Also the chuck spindle carries a taper bearing with an automatic adjustment. A Diamond Truing Attachment is furnished to reface Black & Decker Valve Seat Grinding Stones. A similar attachment is furnished for truing the face of the grinding wheel which refaces the valves. Other standard equipments are: V-block attachment for grinding ends of valve stems; special three-jaw refacer chuck; electric cable and attachment plug; individual switches for motors built in base. Price \$120.

## Crowe Grinding Attachment

Made to fit the Crowe Cup Wheel Valve Refacer the "Crowe Expansion Reamer Grinding Attachment" is offered shopmen by the Lisle Manufacturing Co., Clarinda, Iowa. The makers describe this new appliance as being sturdy in construction, simple and accurate, making it possible to give reamers a "factory-ground" job. Capacity is up to 10 inches and the price complete for the attachment is \$35.



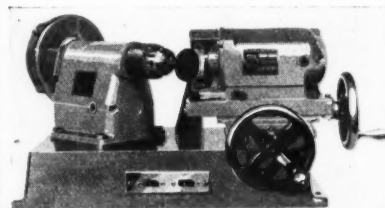
Crowe Expansion Reamer Grinding Attachment in position on Crowe Cup Wheel Valve Refacer

## Air-Operated Spot Welder

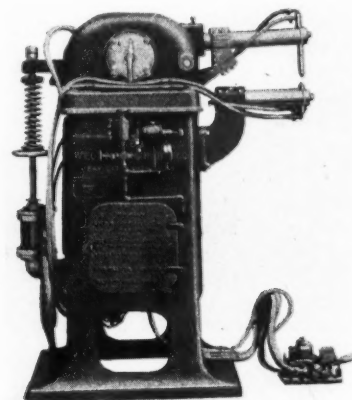
Gibbs Welding Machine Company, Bay City Michigan, has a new offering for the shop in its High Speed Air-operated Spot Welder. Actuated by air instead of being manually operated the makers recommend this welder as being especially fast and a saver of time and energy. It is said to insure uniformity in heat and pressure and to produce almost instantaneous results with uniformity in welds. Ease of operation is one of the specially stressed features, the slightest pressure at the air valve operating the machine. The machine is especially valuable on sheet metal of 18 gage and heavier, the makers declaring that fatigue is eliminated and high speed made possible.

## N. M. & T. C. Display Board

National Machine & Tool Company, Jackson, Mich., offers a merchandising help to jobbers handling the company's garage tools in a display board for salesroom or window use that has just been brought out. While the company asks its list for tools on the board there is no charge for the board, itself. The board is finished in dark oak and attractive in appearance. Over each tool is a brass plate giving name, number and price of the tool. The board will be on permanent display at the Automotive Equipment Mart, 1315 S. Michigan Avenue, Chicago.



No. 45 Valve Refacer



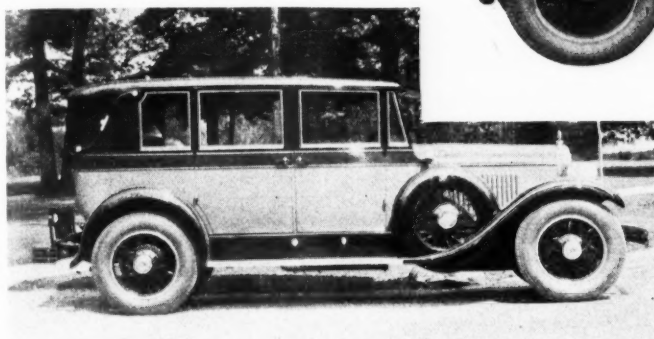
Air-Operated Spot Welder



# Classics in Custom Coachwork

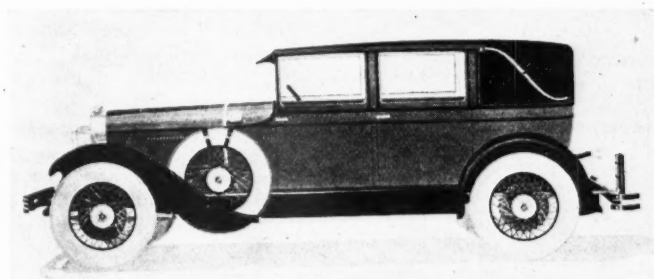


*Locke cabriolet on "Little Marmon" chassis*

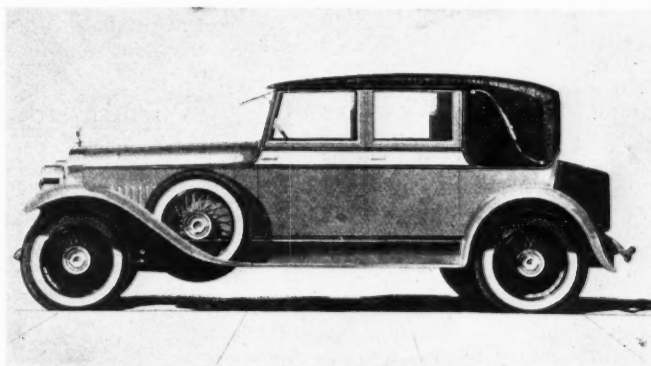


*A Fisher cabriolet type mounted on Cadillac chassis*

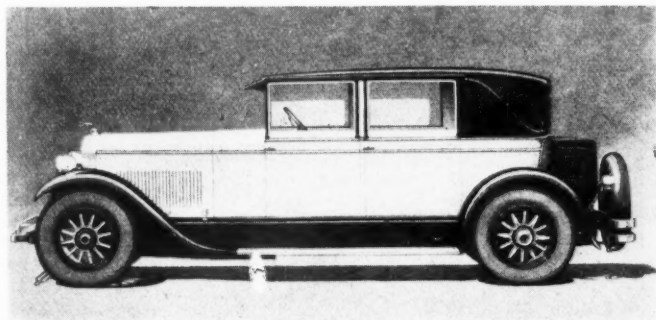
*Some of the Models Seen at New York Salon, Nov. 28-Dec. 4, Where Special Creations of Body Builders' Art Drew Unprecedented Attendance and Scored Record Sales.*



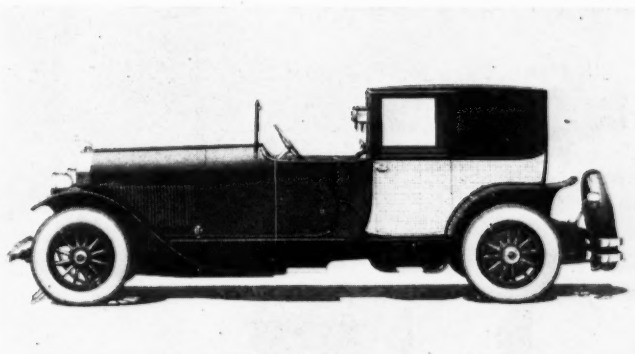
*Holbrook cabriolet model on Cadillac chassis*



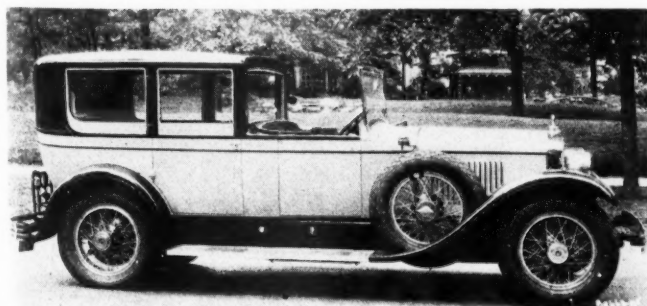
*Brunn sedan on Cadillac chassis*



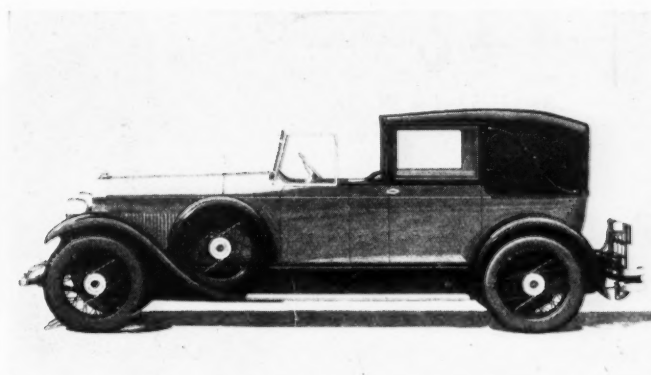
*Holbrook sedan-cabriolet on Lincoln chassis*



*Brunn cabriolet of Italian Renaissance period on Lincoln chassis*



*Fleetwood 7-passenger limousine brougham on Cadillac chassis*  
*December 9, 1926*



*Freach brougham by Locke on Lincoln chassis*



# SEVERAL NEW ACCESSORIES

## Presto-Fargo Ash Receiver

THE Presto-Fargo Ash Receiver, No. 510, is a modification of the Fargo Ash Receiver developed since the Metal Specialties Mfg. Co., 338-52 N. Kedzie Avenue, Chicago, took over the Fargo Ash Receiver business. The receiver has been changed to a clamp-on type, so it may be clamped to the bottom edge of any automobile dash by tightening a thumb screw. It has a tight cover which flies open upon touching a button and its construction prevents ashes from blowing out or to one side when it is used. The exposed rim is of nickel plated brass, the rest of the device being of steel coated with black baked enamel. No drilling of holes is necessary in installation. Price \$2.50.

## Hulse Manifold Heater

HIGHLY efficient heating qualities and easy installation are two of the features of the new Hulse De Luxe Manifold Heater stressed by the Hulsebus Sales Company, the producers, 2039 Harney Street, Omaha, Neb. The equipment's asbestos covering is said to increase the heat supply as well as deadening engine noises. The aluminum deflecting register is also recommended by the makers as having important advantages, chief of which is the deflecting door which permits heat to be distributed in any direction. The heater is made for Willys-Knight, Overland, Hupmobile Six and Eight, Studebaker Big Six, Special and Standard, Nash Advanced Six and Reo.

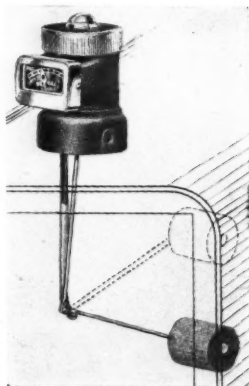
## Red Ball Gage for Chevrolet

MANUFACTURED by the Woodstock Metal Products Company, and distributed by the Carl H. Hoper Company, both at 326 W. Madison Street, Chicago, the Red Ball Gasoline Gage for

Chevrolet cars lists at \$2. A Red Ball gage for Fords, produced by these same makers, was described in the December 2 issue of MOTOR AGE. In installing the Chevrolet gage the cap is removed from the gasoline tank and the gage is inserted, the original Chevrolet cap being replaced on the top of the gage. The makers say the gage is accurate and dependable, with no intricate working parts to give trouble.

## Apco Crankcase Arm

As the latest model Ford engines have a quarter-inch offset between the right and left sides, the Apco Crankcase Arm has been redesigned to continue to fit both. To take care of this, the center and top bolt holes of the arm have been elongated a quarter of an inch. This change makes no difference in the ease of fitting and installing the Apco Crankcase Arm; nor in the effectiveness with which it can be used on earlier Ford models. The Apco Crankcase Arm can be installed in half an hour, with ordinary tools. This device is made of heavy steel, correctly proportioned and guaranteed by the makers to hold the crankcase in perfect alignment. Made by the Apco Mfg. Co., Providence, R. I.



## Vitro-Onyx Radiator Cap

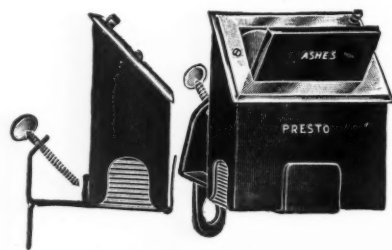
OFFERED by the Welker-Hope Mfg. Co., Middletown, Conn., the Vitro-Onyx Radiator cap is a new addition to this company's line of Neva-Lost Radiator caps. This cap is decorated with polished Vitro-Onyx balls. It is opened and closed by a self-contained bayonet which is catch-free from projecting parts, and operated by giving the bars a quarter turn. Its safety features are said to prevent theft of the cap or Moto-Meter. Besides being furnished in sizes for practically all popular makes of cars the Vitro-Onyx cap is made to fit either the large or midjet size Moto-Meter. List price for small cars \$3.50; for other cars \$4.50.

## Faith Miniature Auto

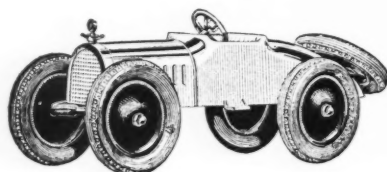
OFFERED for use as an ornament for window and counter displays, "mascot" for the desk or dresser, toy for the child and a device to attract attention for other accessory sales, the Faith Miniature Auto is a product of the Faith Mfg. Co., 2533-29 North Ashland Avenue, Chicago. This tiny automobile is made in two models, the Senior being 14 inches long and five high and the Junior 11½ inches long and four high. It is made of brass cast with nickled body, and has demountable balloon tires and disc wheels finished in red enamel. The Senior lists at \$3.50 and the Junior at \$2.50.

## Brake Lining for Buses

KEASBEY & Mattison Company, Ambler, Pa., is producing a new asbestos brake lining made especially for use on heavy buses. The brake lining is especially stiff and dense to meet the rigorous requirements of bus service.



No. 55150 Ash Receiver



Faith Miniature Auto



Apco Crankcase Arm



Vitro-Onyx Radiator Cap



Hulse De Luxe Manifold Heater

# The READERS CLEARING HOUSE

Questions And  
Answers



On Dealers  
Problems

## Keeping Lubricant Where It Belongs

Q.—We have a 1924 Rickenbacker sedan which is leaking oil very badly. The oil comes out of the transmission around the emergency brake. This oil seems to come from the clutch and go through the transmission. We have installed new felt washers on transmission shaft but this does not seem to help. Is there any way to stop this oil leak?—Automotive Service Co., Fenwood, Wis.

We are showing two illustrations which help to explain the way this trouble is overcome. The transmission and clutch assemblies should be removed and the bearing retainer plate at front end of transmission should be taken off. This is held with three cap screws. The transmission main drive gear with bearing should also be taken off. A channel should now be filled in the bottom center of bearing housing of transmission case. The beginning of this channel should be located  $\frac{1}{8}$  in. from the outer face of transmission in line with the lower bearing retainer plate screw hole. The channel should not exceed  $\frac{1}{8}$  in. in width and  $\frac{1}{4}$  in. in depth. There should also be a channel cut in the bearing retainer plate, this channel being  $\frac{1}{4}$  in. wide and  $\frac{1}{8}$  in. deep, in line with lower cap screw hole to register with channel in transmission case.

This construction provides a drain for any oil which might become pocketed in front of the transmission bearing and which would otherwise be forced out into the clutch compartment. This takes care of leakage of transmission lubricant into the clutch. While this is not the condition you refer to, still it should be taken care of at the same time you are correcting the other

condition. When you have the bearing retainer plate off of the transmission, chuck it in a lathe and turn off the front face of this plate until the remaining thickness is about  $\frac{1}{8}$  in. The purpose of this operation will be seen by referring to the sectional view of the transmission. The point marked "S" is the shoulder at the rear of the splined clutch shaft.

This shoulder should extend forward of the front surface of the bearing retainer plate, so as to act like an oil slinger and keep the clutch lubricant from working into the transmission. This construction together with the use of new felt washer should be effectual in overcoming the trouble you are having. It is also well, however, to discontinue the use of oil slinger No. 4536 and use instead oil slinger No. 4620 at the rear of the splined clutch shaft. The transmission oil retaining washer which should be used just in front of the oil slinger is part No. 4532.

## VENT ON CHAIN COVER

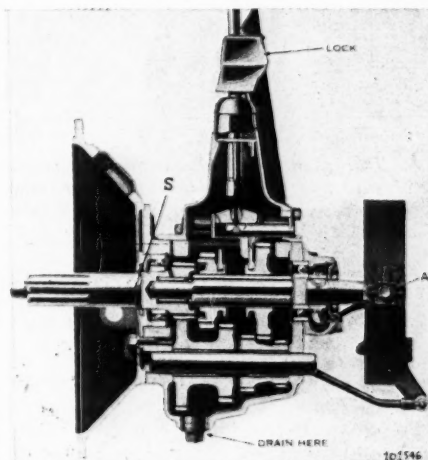
Q.—On a four cylinder Essex, model of 1923, what is the purpose of the small pipe that comes out of the top of the timing case?—Gordon E. Lyon, Crompton, R. I.

This small pipe serves as a vent and helps to reduce the amount of moisture that would otherwise form in the timing chain case. This was put on the Essex cars at the specific request of the Morse chain people. There is a baffle immediately below this small pipe to prevent oil from being thrown out through this opening. In summer time we have known of people closing this vent up but in winter it should be kept open.

## Tapered Cylinder Bore Makes Ford Knock

Q.—We have been working on a 1921 Ford car which has run about 17,000 miles. This car has a knock that does not vary even when the different cylinders are shorted out. This knock can be heard best at about 20 miles an hour on a level road. It has a sound very much resembling a loose wrist pin or piston striking the head. We pulled out the motor, lined up the crankshaft and camshaft and tested it and it tested true. New pistons of .0025 in. oversize together with new rings and pins have been installed. There seems to be no shoulder in the cylinder wall against which the piston could be striking.—Wisconsin Subscriber.

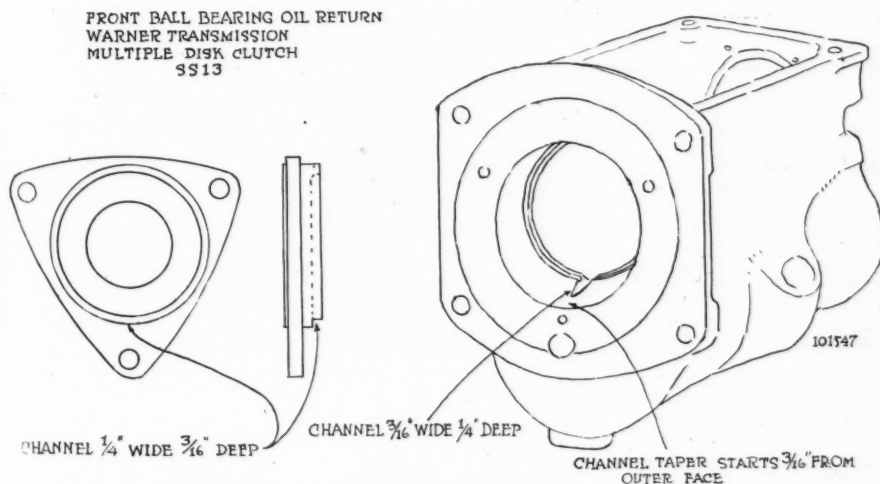
It would be our suggestion that you



The Rickenbacker Transmission

check up the cylinder bores in this engine with a dial gage and see that they are not over .001 in. out of round or tapered. The Ford piston over travels the cylinder bore so that even though the cylinder were badly worn there would be no ridge at the top of the bore. The tendency in cylinder wear is to produce a taper and it is quite possible that your pistons are sticking at the bottom of the stroke. We would also suggest that you check to see that the connecting rods are all so installed that the clamp bolts that clamp the rod to the wrist pin are facing toward the camshaft and that all of the bolts are tight and cottered. If the engine produces a thumping or knocking sound while pulling on the road, especially when accelerating slightly it may be that the engine is loose in the frame at the front mounting bracket under the radiator. If that is the case the cap that holds the crankcase down to the mounting bracket should be filed off or shims placed on the crankcase so that this connection is tight.

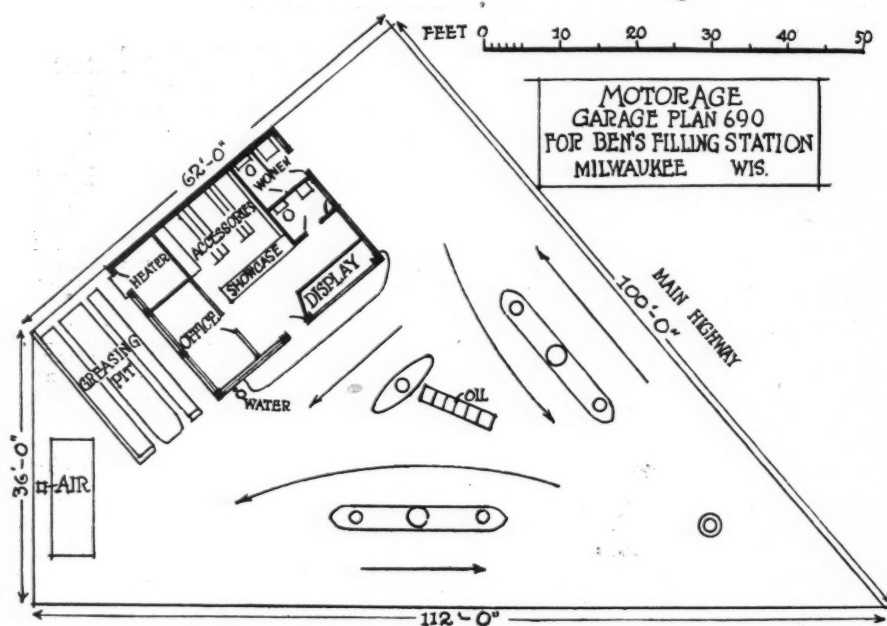
FRONT BALL BEARING OIL RETURN  
WARNER TRANSMISSION  
MULTIPLE DISK CLUTCH  
SS13



Correcting transmission oil leakage on Rickenbacker



# Planning Your New Building



Our plan shows the completed layout for use when the street on the east side has been opened. This arrangement allows cars to drive across the corner or to drive in and out on the same side

By Tom Wilder

## Filling Station for Flat Iron Shaped Corner

Q.—Enclosed please find sketch of a piece of land we just purchased and expect to build a filling station upon soon and ask your opinion and suggestions on this matter. The street marked "Not cut through" will be cut through within the next few years so kindly bear that in mind when making the layout. The "Highway" running on a slant is at the present very busy. We also ask that you please suggest a filling station house of a cheap yet attractive construction.—Ben's Filling Station, 525 Lincoln Ave., Milwaukee, Wis.

Ordinary in such a layout as this the pumps are arranged so that cars may drive across the corner from one street to the other, but since one of your streets has not been opened, this would not be very practical unless you put in a temporary pavement along your frontage connecting with the main highway.

Since most of the cars you service will be passing along the main highway we believe it would be better to have the pumps along this side so that they may drive onto the lot and back onto the highway in the direction that they were already going. Later when the other street is opened the same arrangement can be made on that side and at the same time the few people who wish to drive from one highway across to the other, may go across directly in front of the building. This arrangement will take care of as many cars as a drive-across arrangement and will save the customers who are going south or southwest from circling to point again to resume their journey.

We have arranged a greasing pit alongside the building where it will be out of the way but still in a very good position. You have not given us much of an idea of what kind of building you wish and consequently we have used our own imagination in its layout.

We would suggest that your building be designed with as much style and individuality as possible in order to get the benefit of the advertising it would give you.

Select some snappy looking small building or house as a model and build your own to get the necessary lines.

Of course you couldn't decide upon a Spanish style house and then build it of logs without lathing the logs over and applying stucco to the outside, which would be foolish. But a Spanish style house could be built of light frame construction, hollow tile, adobe blocks, cement blocks or stone and when stuccoed no one could tell the difference.

## Cleaning Out Radiators

Q.—In what proportion should I use ordinary baking soda for cleaning oil and grease out of a radiator and how long should the soda be left in the cooling system.—West Coast Reader.

To clean the cooling system of an automobile you should use one pound of soda for each gallon of water. The soda should be thoroughly dissolved before being placed in the cooling system. While it is possible to use baking soda as you suggest you will find it more economical and just as effective to use sal soda. After this mixture is placed in the cooling system the engine should be idled until the radiator boils but be careful that the solution does not

boil over or splash onto the finish of the car. To speed up the boiling of the solution it may be desirable to remove the fan belt, or put newspapers on the radiator or to retard the spark. After the solution has been thoroughly circulated at the boiling temperature it should be quickly drained off. This can be readily accomplished by removing a lower hose connection and is done in order to flush out all of the loose foreign matter. The cooling system should then be flushed with clean water and when there is no more evidence of dirt or rust coming out the hose connection should be put back on and the system filled with clear water.

## LEGAL QUESTIONS ANSWERED

By Wellington Gustin

Q.—We sold a man a new battery who also owes for some parts, gas and oil and has disposed of the car to another man living outside of the parish and gone himself to a foreign country. What would our best plan be to get our money? Our city judge advises that if we seize the car and the possessor of the car fights the case he can beat us. Please advise.—Johnson's Garage, Oakdale, La.

Louisiana gives the garageman a lien for repairs and labor goods for three months, but this lien is not good against

an innocent purchaser of the repaired car who knows nothing about the lien claim, and who has paid for car.

Now if the innocent purchaser has not paid for the car you may have a chance to recover the amount unpaid, at least by garnishment or attachment. If you fail in this, and cannot find other property of your debtor, you can send your claim for collection to a reputable attorney of the place to where the bird has flown, provided you can locate him.



# Answers to Readers' Questions

## Compression Ratios on All Cars

Q.—Is there a list of compression figures published anywhere showing compression on all engines when they are new?—H. M. Krenkel, Treasury Dept., U. S. Public Health Service, Carville, La.

We do not know of any figures which give the compression in pounds per square inch. We are showing below, however, data on the compression ratio which multiplied by 14.7 gives the theoretical compression. The actual compression will be somewhat lower depending on the methods used in checking and the leakage of the engine in question.

The following data on compression ratios is taken from Automotive Industries, February 18, 1926:

Alax 6	4.5	Lexington 6-50	4.5
Apperson 6	4.7	Lincoln 8	4.8
Apperson Str. 8	4.6	Locomobile 48	4.2
Auburn 4-44	4.1	Marmion 74	4.3
Auburn 6-66	4.5	McFarlan 74	4.3
Auburn 8-80	4.5	McFarlan SV	4.8
Buick Master	4.2	McFarlan TV	4.3
Buick Standard	4.5	McFarlan Str. 8	4.6
Cadillac 314	4.7	Moon London	4.2
Case 1. I. C.	4.2	Moon Series A	4.5
Case Y	4.3	Oakland 6	5
Chevrolet K	4.3	Oldsmobile 6	4.7
Chrysler 6-G	4.7	Packard 6	4.5
Cleveland 43	4.7	Packard 8	4.5
Cunningham V6	4.3	Peerless 6-80	4.4
Dagmar 6-60	4.5	Reo 6	4.8
Dagmar 6-70	4.3	Revere 25	4.3
Davis 92	4.4	Rickenbacker E	4.7
Davis 93	4.5	Rickenbacker B-8	4.7
Dodge Brothers	4	Roamer 6-50	4.5
Duesenberg Str. 8	5	Roamer 8-80	4.5
Dupont D	4.8	Roamer 4-75	4.7
Elcar 4-55	4.1	Rolls Royce S. 6H	4
Elcar 6-65	4.5	Stearns Knight B	4.5
Elcar 8-81	4.5	Stearns Knight C	4.6
Flint Jr. 6	4.5	Stearns Knight S	4.9
Flint 80	4.2	Studebaker Stand. 6	4.5
Ford	3.9	Studebaker Spe. 6	4.5
Gardner 6-A	4.5	Studebaker Big 6	4.5
Gardner 8-A	4.6	Stutz AA	4.8
Gray S	3.6	Vello 60	4.7
Hertz DI	4.5	Wills Ste. Claire 68	4.1
Hupmobile E-2	4.8	Wills Ste. Claire W6	4
Jewett New Day	4.5		

## 10 BELOW ZERO IN TEXAS

Q.—Will 3 qts. denatured alcohol and 1 qt. of glycerine protect a Ford radiator at 10 deg. below zero.—C. R. Treat, Chico, Tex.

The capacity of the cooling system in the 1925 and 1926 model Fords is 3 gal. This mixture would give you a 33 1/3 per cent solution which would protect your car down to about 5 deg. above zero.

Q.—Why is it recommended that glycerine be added to the anti-freeze solution?

Due to the high boiling point of glycerine and the low boiling point of alcohol, it is desirable to mix in some glycerine in order to keep the solution from having an extremely low boiling point and hence evaporating rapidly.

## TO CLEAN OUT LIME

Q.—It is said that the lime in a tea kettle may be removed with a solution of 30 grams of borax in 1 quart of water which contains a few drops of aqua ammonia. Would this be effective in removing lime from automobile and tractor cooling systems. Would this

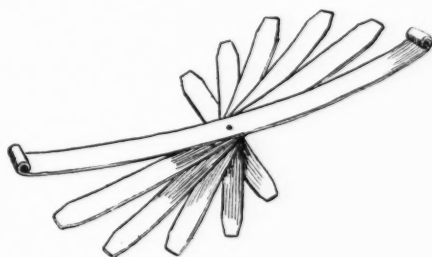
solution be injurious to the radiator? Would it harm the hose connections?—M. R. Wilson, Miltonvale Rural High School, Miltonvale, Kansas.

We have not heard of the solution you speak of being used for cleaning out lime, but as you say it only contains a few drops of ammonia in addition to the borax, we doubt if this would do any harm to any part of the cooling system. In order to effectively clean lime from the radiator it is generally considered best to remove the radiator and immerse it in a boiling solution of 50-50 muriatic acid for a brief period. The acid will attack the metal of the radiator and so it is necessary to watch the process carefully in order that no damage be done. Generally 15 to 20 minutes in this solution is sufficient to remove the average accumulation.

A very effective method of cleaning the cooling system on the car is to dissolve one pound of soda for each gallon of water and permit this solution to come to a boil in the cooling system. This should then be drained off very rapidly in order that all sediment be carried with it. The cooling system should then be flushed with clear water until there is no sign of any more dirt coming from it and then filled with clean water.

## SHOP KINKS IDEAS That have been Found Useful

An easy way to assemble a leaf spring is to clamp the head of the center bolt in a vise. Lay the leaves on the spring one at a time staggering them, as shown in the sketch. Put on the nut until all threads are engaged with the threads on the bolt. Then turn the leaves around one at a time and tighten down on the nut.—J. H. Wheeler, East Side Garage, Salt Lake City, Utah.



Readers of MOTOR AGE are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

## What Makes 'Em Shimmy?

Q.—Would sagged front springs of the semi-elliptic variety have a tendency to cause front wheel shimmy?—Gordon E. Lyon, Crompton, R. I.

The sagging of the front springs in this case will tend to change the angle of the front axle which in turn will affect the caster of the front wheels. The conventional manner of hanging front springs is to secure them to the frame horns by shackle bolts at the front and at the rear to suspend them on shackles. The result of this is that front position is fixed but the rear position will change, for example as the spring sags it elongates and the lengthening causes the rear shackle to swing up closer to the frame. As the front axle is secured to the spring and as the rear of the spring tends to rise as the spring sags the tilt or caster of the front axle may change to a vertical position or may go so far as to take on a reverse caster which would make the car very hard to control.

Q.—With all joints tight, what are the most probable causes of shimmying?

With all joints of the front system so adjusted that there is no appreciable play, if shimmy persists it is probably due to unbalanced wheels, to improper toe-in or incorrect caster, the wrong pitch, or to unequal inflation of the front tires coupled with some slight misalignment of the wheels.

Q.—Which way do you advise tipping the front axle to overcome shimmying?

Practically all cars are designed with the top of the axle tipping slightly toward the rear. If the springs have sagged so that this angle has changed it would be well to either replace the springs or have them re-arched, or to install special shims which are made for the purpose of restoring the original caster to the axle.

## CLUTCH STICKS

Q.—We have a 1918 Buick six that we use in business. Lately the clutch has been giving us trouble by spinning so that it is almost impossible to mesh gears. The clutch is not old and apparently is in pretty good condition. If you have any suggestions on this we will be very glad to hear from you.—Henry Hons, 2001 Oak St., San Francisco, Calif.

The clutch used on the 1918 Buick six is of dry plate design and if by chance any oil has gotten on it it would cause the plates to stick together and produce the trouble that has bothered you. We would accordingly suggest that you try washing this out thoroughly with kerosene. If that does not relieve the condition and all adjustments are as they should be, it is quite likely that one or more of the plates are warped and should be replaced.

# Clearing Up Electrical Troubles

## Motoring Test Should Be Made First

Q.—I am having trouble with a Westinghouse generator used on a Gray car. It will not charge at all. I took it apart and examined everything and everything seemed O. K. It is a third brush generator and the fuse is good. There are no grounds or short circuits that I can find and the armature is O. K. when tested with an ammeter.—Carlos Farris, Tilford, Ky.

We are showing a diagram which gives the internal circuits of this generator. You would of course remove the relay in making a test. The next thing to do would be to try a motoring test using a 6 volt battery connecting one terminal to the frame of the generator and the other battery terminal to the generator terminal. It would also be well to have an ammeter in the circuit, so you can see what current flows. One of the first things to check on a generator which does not function is to see that you have field and armature circuits. For example if you get no discharge current at all on the ammeter it shows an open circuit. This would probably be between the terminal and the first brush, because otherwise you would have an open circuit in both the armature and the field.

If you get only two or three amperes and the machine will not run as a motor it is probably field circuit and the armature circuit is open. If you get 12 or 15 amperes and the machine does not motor it is probably the armature circuit and the field is open. If you get some current flowing you can snap the field fuse in and out of its clip to see if it makes a difference in the ammeter reading. This will also tell you whether you have field circuit or not. If removing the field fuse should cut the current down to zero, then it would show that you had nothing but field current. If you do not get either field or armature circuit it is of course necessary to explore further, testing inside the generator to find out where the break occurs. After you are sure you have both field and armature circuit you are quite certain to have the machine run as a motor. Then if it runs in a jerky fashion and pulls an uneven current as shown by the ammeter it practically always indicates armature trouble. A normal machine will usually run as a motor drawing three or four amperes.

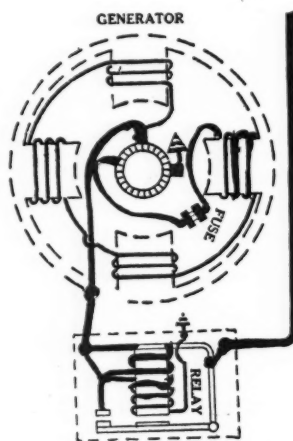
## Effect of Variation in Interrupter Gap

Q.—Give the proper clearance in thousandths for setting ignition points on the following electrical systems such as: Atwater-Kent, Auto-Lite, American Bosch, Dejon, Delco, Dyneto, Northeast, Robert Bosch, Splitdorf, Wagner and

Edited By A. H. Packer

Westinghouse. Which will cause overheating of the engine, too small clearance or too large? How much more gap would you give the spark plug than the points?—H. J. Perry, 326 E. State St., Ithaca, N. Y.

We hardly have space available to give an answer exactly as you ask your question. You will find however, that on Atwater-Kent systems where the cam is small, being machined from the distributor shaft itself, that a clearance of from .006 to .008 in. will be about right. Where larger cams are used as on the other systems you will find a clearance from .012 to .020 in. We believe that in most cases some variation can be allowed without appreciably affecting the operation of the engine. Variation in the interrupter point opening will not cause the engine to over-



Westinghouse Internal Circuits

heat unless at the same time it results in retarding the spark.

On a small cam such as Atwater-Kent a variation in the gap setting does vary the timing to some extent for it causes the cam to strike the fiber bumper on the interrupter lever sooner or later. Accordingly after setting the interrupter points it is desirable to check up on the timing especially where a small cam is used. In general a small interrupter point opening will work better at high speed for the points close again quicker and give the coil more time to build up its magnetism. On the other hand a wide gap setting may work better at low speed because with the cam moving slowly it gives a more sudden break to the primary circuit. Aside from these two general requirements there is some variation which is permissible. Spark plug gap setting does not depend on the interrupter gap setting but should usually be .025 in.

## Test With Ammeter in the Circuit

Q.—I have a Remy generator off a 1926 Chevrolet. It will not generate. I have tested the armature and field coils for shorts. The generator will run as a motor. What would you suggest is wrong with it.—C. E. Schurr, No. 104, Sunrise, Wyo.

The motoring test is a very good one if you do it carefully. In the first place the generator should run in the same direction that it will be driven when on the car. In the second place the armature should run fairly slowly, approximately 300 or 400 R. P. M. and should run steadily. You should also make the motoring test, having an ammeter in the circuit so that you can tell the current that the machine takes from the battery. It should take 3 or 4 amp. and run smoothly and evenly. If there is a perceptive jerk or vibration when motoring and if the ammeter indication is unsteady and in the vicinity of 8 or 10 amp. instead of 3 or 4 amp. then it shows that the armature is shorted.

A ground in the armature might do the same thing. You should have a test bench in order to do this work efficiently. When a machine runs as a motor it should be driven in the same direction only faster and should generate. For example if the machine is running as a motor at 400 r. p. m. and is drawing a discharge of 4 amp. then if you drive it faster, say 500 r. p. m., it should perhaps show a discharge of only 1 amp. Then if you drive it still faster the discharge should change to a charging current. If at extremely high speed you only get the ammeter to indicate in the vicinity of zero and cannot get an appreciable charge indication, then it is another sign that the armature is defective.

## CADILLAC MAGNETO INSTALLATION

Q.—In the October 14th, 1926 issue of Motor Age on page 29 was a question in regard to installing magneto on Cadillac. We once had occasion to shoot trouble on a similar car, a 1913 model. A garage had installed the magneto on the base of the old generator bracket and connected direct to the pump shaft, but all they could get was an occasional shot with a great deal of spitting and popping. On checking we found that the pump shaft does not run at crankshaft speed which solved the mystery. We mounted the magneto on top of the water pump and if I remember rightly there is a tire pump on that model which we removed. We drove the magneto with a short chain. This may be of some assistance to Mr. Roundy.—V. E. Kuster, Port Angeles, Wash.



# Clearing Up Electrical Troubles

## Kinks in the Magneto Recharging Process

Q.—I would like to get some information on recharging magnets. I have a good factory made single coil magnetizer, but have had varying results with it. Should the magnet be laid on the poles vertical or horizontal? How long should it stay on charge? Should the current be left on steady or should the circuit be broken a number of times? Is it advisable to tap the magnets with a piece of wood or brass while being recharged? What is the best way of taking magnets away from recharger, with the current off or on?—L. Vilatte, Frederick Hotel, International Falls, Minn.

We are showing two illustrations, a large one and a small one. The large illustration was first published in connection with one of the Bill Fixit stories in the February 11, 1926, issue of *MOTOR AGE*. In this large illustration the figure at the left shows the way of getting the magnet the right way on the magnetizer. It may be suspended by a piece of string or on the point of your finger and with current in the coil of the magnetizer the magnet will be attracted a certain way which is the correct way to allow it to go on the magnetizer. It will then be in the position shown in the center illustration except that the keeper is not yet needed. Different electricians have different ideas as to the best way of treating the magnet after it is on the magnetizer.

The editor's personal experience, however, seems to indicate that it does not make much difference whether you rock the magnet back and forth, tap it with a wooden mallet or make and break the circuit. Jarring and vibration of some sort is supposed to help the molecules turn so that they line up with each other and produce the mag-

netic effect that we want. Another method is shown in the small illustration. Here the magnet is laid on its side after the correct polarity has been determined and is then drawn from the magnetizer so that the ends of the U shaped piece of steel leave the poles. If you pull it off the other way so that the U shaped portion leaves the poles it leaves the magnet weaker instead of stronger. This process can be repeated dropping the magnet on its side on the magnetizer and drawing the ends off last.

It can then be dropped on as shown in the center sketch of the large illustration and can be rocked back and forth two or three times. The keeper should then be applied and we do not believe it makes any difference whether you cut off the current first or slide the magnet off first. In either case the keeper will act to retain the magnetism. The magnet is then transferred to the frame of the magneto as indicated in the right hand sketch in the large illustration. As it is pushed down onto the frame of the magneto the keeper is taken away. We do not believe that it does any good to leave the magnet on the magnetizer for any great length of time.

### SELECTING BENDIX SPRINGS

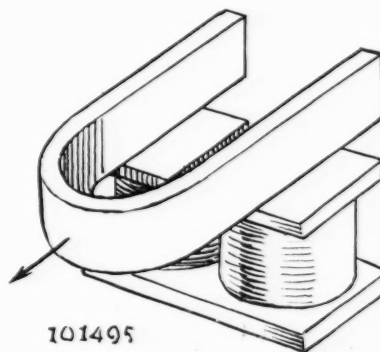
Q.—I would like a little information regarding the Bendix spring used on starting motors. Are they wound right and left hand for use according to whether the starter is on the right or left side of the car.—Ray Murtha, Victor, Iowa.

When installing a Bendix spring, one can be sure that he has the proper spring if he will just take note of the direction of rotation of the starter and see that the turning action tends to wind the spring tighter instead of unwinding it.

## Charged Battery Gets More Current

Q.—I wrote you about a Delco generator on a Buick car charging too much. You told me to look for a grounded third brush which would cause the field winding to get full armature voltage. I did not find the third brush grounded but did find that the wire leading to the third brush was rubbing against the commutator and the corner of the commutator had cut through the insulation and was rubbing on the wire. It is O. K. now but charges more than it used to. It does not go over 15 however, as I only use the car on Sundays so that the charging rate will be all right.—Henry Hons, 2001 Oak St., San Francisco, Calif.

There is another cause of high charging rate with third brush regulation. If the battery once gets full charged it



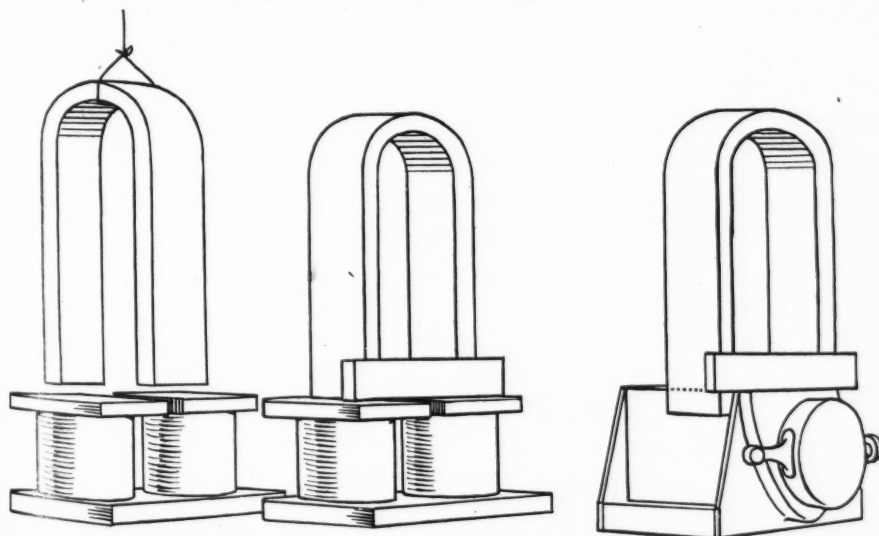
One method of recharging

holds the voltage of the generator up so that the charging rate is higher than would otherwise be the case. If you ever have trouble with the charging rate being too high and find that the battery is fully charged you might turn on lights until the battery gets down to 1200 or 1225 specific gravity.

### SAYS TRY A NEW COIL

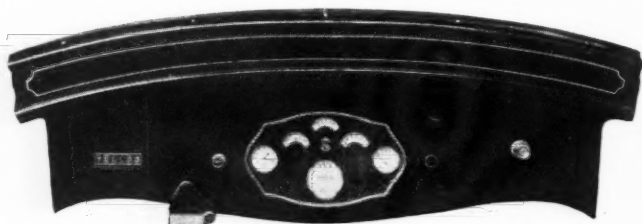
Q.—I notice on page 30 of the November issue of *MOTOR AGE* an article entitled wabbling cam may cause missing. In this article a number of suggestions in regard to the ignition system were given but the possibility of a weak coil was not mentioned. I believe it would pay Mr. H. H. Croy to try another ignition coil. Sometimes in testing the coil the spark seems to be approximately right but it is just weak enough to give trouble under heavy pulling or perhaps at high speed.—G. H. Allard, Automotive Repair Co., McGregor, Iowa.

This suggestion is a very good one, for unless a coil is run on a test bench and very carefully checked and compared with a new coil it is quite likely that it will be pronounced O.K. and yet under extreme conditions will affect the operation of the engine.

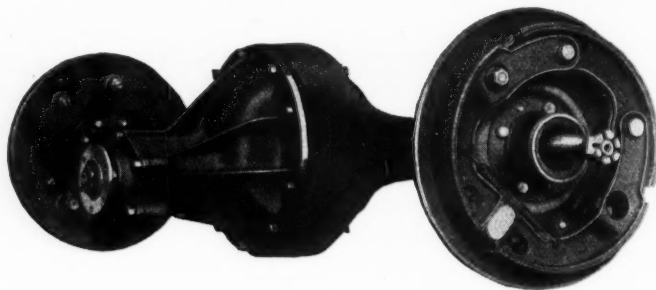


Locating, recharging and installing a magnet





The instrument board with indirect illumination from two lights. Under the glass are the speedometer, electric clock, ammeter, electric gasoline gage, oil gage and temperature indicator. Note also the Marmon coat-of-arms in the center. At the right is the cigar lighter and at the left the Fedco number plate



The rear axle showing how the hypoid gears make possible a low hung propeller shaft. The three shoe Bendix brakes which are self energizing are also illustrated in this view

## "Little Marmon" Eight

(Continued from page 17)

manner goes to the piston just below the lower ring.

Lubrication of all bearings is by pressure, with the exception of the piston pin. This floats in a bronze bearing in the connecting rod and in the bosses of the Lynite pistons, where it is held by means of snap rings. A drilled hole in the top of the connecting rod collects oil mist and feeds it to both sides of the pin. In the pistons there are four holes which operate in similar fashion and feed oil to the piston pin so that thorough lubrication is assured. The rocker arm shaft is hollow and receives oil under pressure, which is distributed to the rocker arms.

Main bearing diameters are each  $2\frac{3}{8}$  in., while lengths from front to rear are  $1\frac{1}{2}$  in.,  $1\frac{1}{2}$  in.,  $1\frac{1}{2}$  in.,  $1\frac{1}{2}$  in., and  $1\frac{1}{2}$  in. The camshaft is driven by a 24 in. silent chain,  $1\frac{1}{4}$  in. wide, this chain having 64  $\frac{3}{8}$  in. links. The camshaft has five bearings, the front one being  $1\frac{7}{8}$  in. in diameter and  $1\frac{1}{2}$  in. long, the second is  $1\frac{1}{8}$  in. in diameter and  $\frac{3}{4}$  in. long, the third,  $1\frac{3}{4}$  in. diameter and  $1\frac{1}{2}$  in. long, the fourth,  $1\frac{1}{8}$  in. in diameter and  $\frac{3}{4}$  in. long, while the rear bearing is  $1\frac{1}{8}$  in. in diameter and  $1\frac{1}{8}$  in. long.

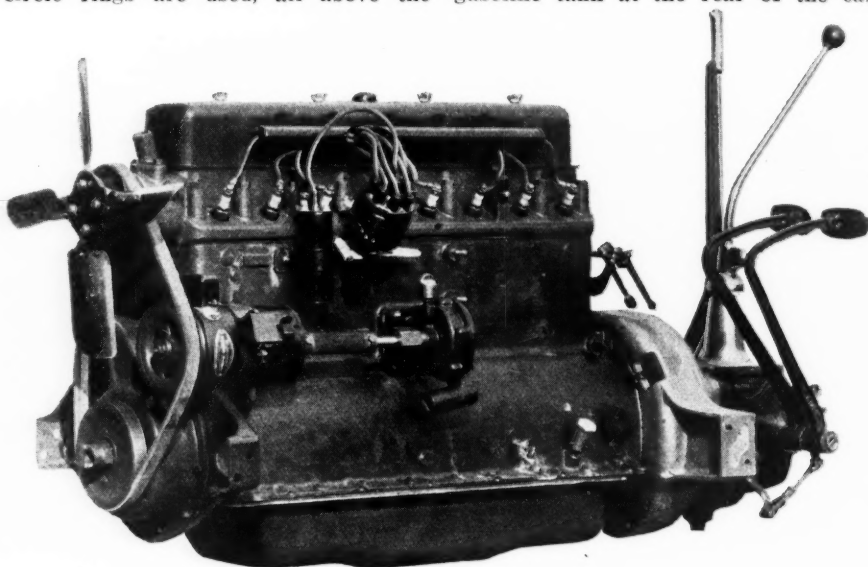
Valves are chrome nickel for the intake, the diameter being  $1\frac{1}{8}$  in., while the exhaust valves are Silchrome and are 1 in. in diameter. The valves are timed so that the intake opens 6 degrees before top dead center and closes 40 degrees after bottom dead center. The exhaust valve opens 40 degrees before bottom dead center and closes 6 degrees after top dead center. Connecting rods are drop forged, heat treated carbon steel and are  $7\frac{3}{4}$  in. long, center to center. The crankpin diameter is  $2\frac{1}{8}$  in. and the length  $1\frac{1}{4}$  in.

The Lynite pistons, previously mentioned, have the Invar strut construction, Invar being an alloy that has practically no expansion with heat.

This makes it possible to have an extremely light weight piston and yet be able to fit it extremely close, the clearance being .0015 in. cold. Three Perfect circle rings are used, all above the

used to drive both the generator and fan.

In the fuel system a downspout type of intake manifold is used to facilitate equal distribution of fuel to the various cylinders. The fuel system also includes a  $1\frac{1}{4}$  in. Schebler carburetor, Stewart vacuum tank and a 12 gallon gasoline tank at the rear of the car.



Left side of engine showing belt drive for fan, generator and water pump. At the right just ahead of the flywheel housing is the oil drain handle which makes it unnecessary to get under the car to drain crankcase oil

piston pin, the lower one being an oil type ring, for which the lower groove is drilled. The oil pump is located in the sump so that operation is insured if there is any oil at all in the crankcase. The drive is from the camshaft. A relief valve limits the oil pressure to 40 lbs. The cooling system includes a centrifugal pump driven at the rear of the generator, a Vee type belt being

Starter, generator and ignition are Delco-Remy, the ignition unit having a four point cam and double set of ignition levers, operating alternately. Manual advance is 20 degrees, with 25 degrees automatic advance. Ignition point and spark plug opening are each .020 in. The firing order is 1-6-2-5-8-3-7-4. Meshing of starter gear with flywheel ring gear is accomplished mechanically.

## Chrysler Rumble Seat Roadsters

Two new roadster models with rumble seats have been added to the "50" and "60" lines of the Chrysler Sales Corporation. On the "50" chassis the rumble seat is supplied on the regular roadster body at an additional cost of \$45, making the price of this model \$795.

On the "60" chassis a complete new rumble seat roadster listing at \$1175 has been added to supplement the present two passenger car.

Both roadster models on the two chassis are upholstered in Spanish leather, while the "60" model is equipped with an automatic windshield cleaner, windshield wings and front and rear bumpers as standard equipment. Two new

body styles have been added to the line also on the "80" Imperial chassis. These models are a cabriolet listing at \$3455 and a 5-passenger town car at \$5495. The cabriolet is of the two passenger type with a folding rumble seat for two additional people. It is provided with a tan folding top and a special compartment for carrying packages behind the front seat.

# EDITORIAL

## Sell Now for Christmas

THE nearness of the holiday season is a merchandising challenge to every automotive dealer. The value of automotive gifts is universally recognized and the public is receptive. Some dealers already have made the most of this situation, but far too many have not yet made the slightest effort to profit from the opportunity.

Many dealers do not appreciate ease of conducting a good Christmas selling campaign. What must he do to succeed?

First, he should clean up and dress up his store. Cleanliness means dirt off the plate glass window, out of the show window space, floors well swept, walls and ceilings clean. The merchandise should appear fresh and be well displayed. And then the store should be decorated in Christmas style with clean and fresh materials, such as are provided by the Automotive Equipment Association.

Second, he should have an ample stock of well selected merchandise, such as from past experience he is reasonably sure the people in his community will buy. But he must assume some responsibility for showing the people why they should buy the merchandise that he has to sell.

Third, he should see that every man, woman and child in his locality knows about the fine automotive Christmas gifts that may be had at reasonable prices at his store.

Thousands of dealers are profiting by this plan and thousands of others should do likewise.

*Are you ready for the New Year?*

## Watch Credits

AUTOMOTIVE dealers and garages in many localities find it necessary to do some credit business. Some good consistent customers prefer to make monthly settlement for all purchases and services of the preceding month. For customers who are responsible and recognized as "good pay" this is an advantageous arrangement for both the dealer and the customer.

But the dealer has to be alertly cautious in extending such accommodation to persons whose resources are unknown and whose reputation for prompt payment of bills has not been established with him. The reason for the customer's asking credit is a good thing to inquire into before permitting him to accumulate obligations. If the customer is found to be able to pay for all his reasonable wants and is asking for credit only for the purpose of enjoying the convenience of monthly settlements, and if he has a good reputation for meeting his bills when due, the granting of credit is likely to be safe and profitable.

If, on the other hand, the customer is asking for credit solely because he is not now able to pay for the service or merchandise he is obtaining, he is a doubtful credit risk, and if credit is extended to him

some security should be obtained for the payment of the debt.

The loss of a single dollar through a bad credit account wipes out all the profit on several dollars worth of business. Losses of this kind either break the dealer or make it necessary for him to increase his charges to well paying customers to cover the losses. The latter plan obviously is unfair to the customers who pay as they go. Caution and good judgment in matter of extending credit is the better plan.

*Make Money next year.*

## Rubber in Automobiles

WE are inclined to think of tires and nothing else when we turn our attention to rubber in connection with automobiles. As a matter of fact rubber is becoming an important component in the construction of the automobile at many points other than the periphery of the wheels.

Someone in the Nash organization with a capacity for enumerating details has itemized the many uses of rubber in the construction of the Nash cars. We are reminded of the following uses of rubber: At the four points of engine suspension. In the steering column bracket to prevent vibration. To insulate the steering gear housing bracket. In the driving belts for generator, fan and pump. Between the spring platforms and the frame. In the center of the clutch disks. On the pedals and around the emergency brake opening. On the dash to form eyelets through which the tubes pass that go to the instrument board. For door bumpers, radiator hose and wiring insulation.

Rubber is unquestionably a basic material in automobile construction and America should make sure of her future supply of this necessary product.

*The big Show and Specification issue of MOTOR AGE will be published Jan. 6, 1927.*

## That Little Jewel Box

THE keys to happiness on the Christmas tree!

For grown up boys and girls who long since have passed beyond belief in the myth of Santa Claus there is a thrill in the thought of receiving the "keys to happiness" in a beautiful jeweled box on the Christmas tree on Christmas morning.

What are the keys to happiness?

For hundreds of men and women and whole families the keys to happiness are the keys that operate the new car. And the Studebaker plan of providing a little jewel box in which the keys of the Christmas gift automobile may be hung on the tree is a splendid arrangement.

Sentiment has an important part in the sale of Christmas gift automobiles and the more the dealer can do to add to beauty and impressiveness of the occasion the more easily he will make the sales.



# SHARP DROP MARKS MONTH'S

## Business Slows Down For Trade in November

### Accumulations of Resale Vehicles Season's Out- standing Problem

Reports on trade conditions throughout the United States in November bring out high spots which may be summarized as follows:

Generally speaking, there was a sharp decline in the sale of new cars as compared with October, sales following November's usual downward curve and being retarded in many localities by adverse weather conditions.

A used car situation that is growing more uncomfortable in many localities, resale stocks growing larger and calling for special attention to this department on the part of dealers.

A slight improvement in some regions with respect to the sale of trucks, this field being in comparatively better shape than that of car merchandising. Betterment in the truck field, however, was not general, the business being more or less spotty.

Better feeling in parts of the south respecting the cotton situation and better car sales than in October in the southwest, where the cotton scare seems to be losing its force.

While there is nothing in the general business picture to cause uneasiness, it offers a hint to automobile dealers to watch especially their used car departments so frozen investments in this branch of the business will not impede profitable progress for the rest of the year or cut in on the profits of the new period of more active selling which will begin after the shows. Following are correspondents' reports from a number of key cities:

#### Dallas

The scare occasioned by widely heralded cotton crisis appeared to be passing in Texas and parts of Oklahoma, Louisiana, Arkansas, New Mexico and Arizona as the year entered the twelfth month. There appeared to be plenty of money in circulation and practically all automotive lines were improved. The total amount of business in most lines in 1926 will exceed that of 1925, dealers, jobbers and distributors assert.

New car sales during November were about 5 per cent better than for the preceding month. Business in rural districts where buying had been halted by the cotton price slump was much better. The trade in the city was normal.

The used car business was about the same as for the preceding month, with some improvement noted in the rural districts. Many of the retailers have pretty heavy stocks and have reduced the prices to move them.

Truck sales showed some improvement, especially in the rural districts. The trade in the cities was reported about normal. Light trucks appeared to be favorites, but a considerable number of heavier machines were disposed of.

#### Charlotte, N. C.

The passing of the Thanksgiving holidays and the approach of the Christmas season tended to strengthen the retail automobile market in the Carolinas and at the close of November the volume of business compared favorably with the five-year average for this season.

The low price of cotton was continuing to exert a depressing influence on the automotive trade, but this was offset in an important measure by the steady operation of the textile manufacturing industry and the large volume of building activity.

Reflecting the wave of economizing, which swept over this territory in the early fall, was the slowly increasing demand late in November for used cars, especially closed models. The demand for tires was hardly better than fair. Some slight improvement late in November was reported by the dealers in accessories, who reported their business is fair for the season.

The generally satisfactory position occupied by industry in the two Carolinas, particularly North Carolina, is reacting to the substantial benefit of the motor truck dealers.

#### Detroit

New car sales in Michigan appear to be somewhat slower than a year ago at this time. Despite the fact that the volume is somewhat smaller than in 1925, the condition can be classed as good and the year's total will be well in excess of that of a year ago.

Several factors have contributed to lessen the demand for new cars. Production in a number of the automobile factories, along with other industries, has been curtailed more this season than a year ago, with a result that many employees are not furnished as steady employment as during the late months of 1925.

Continued rains and unfavorable weather have not been conducive to automobile sales.

While passenger car sales have been downward, truck and commercial vehicles appear to have found a more ready sale than a year ago. The used car market remains unchanged although there is an unusually large stock of used cars in Detroit.

#### Denver

An appreciable slump in automobile sales, both new and used cars, made its appearance late in October and continued till nearly the middle of November. At that time conditions improved and have been on the upgrade ever since. It seems that November was about 20 per cent under the same period of last year. The cause is hard to locate. Farm conditions are almost ideal, and the sugar companies are distributing the largest beet payments in the history of the state. Perhaps the open weather has retarded buying. Advance orders for Christmas are beginning to make an appearance, and it is thought that next month will do much to offset the November slump.

Trucks in general reflect the same situation. The heavy buying of light jobs for marketing the beet crop is over, and conditions in general in this line are a little below normal.

Collections are better. The used car market is picking up a little faster than that of the new cars.

#### Minneapolis

Crop conditions and snow and cold weather have cut sales of automobiles and accessories in the Ninth Federal District. However, a slight increase for the end of November over earlier in the month was noted.

Local sales of winter needs for cars are pretty good. In the automobile line there seems to be a fair demand for high priced cars. An excess of used cars makes trade-in deals more undesirable and has slowed the market some. Farmers are buying cars a little better as the season progresses and seem to have some money laid away. Business in general was spotted. In the larger cities and most of the spring wheat belt general business was not as active as a year ago.

#### Cleveland

November was the poorest sales month for automobile distributors and dealers since 1923. New car and truck sales were decidedly low and used cars scarcely moved at all. General business conditions in Cleveland are not as good as was expected. These conditions were naturally reflected in the motor car business.

One note of optimism in November was derived from the fact that there were a number of orders placed for spring delivery and quite a few used cars were turned in to be sold for motorists who will select new models after the first of the year. November weather was decidedly unfavorable to new car sales.

With business not what it should be and dealers busy with show plans, it is not likely that any great sales increases will be noted during the remaining month of the year.



# SALES OF PASSENGER CARS

## Columbus, O.

Outside of a few exceptions, business among passenger car dealers in November was not as good as in November of the previous year. Exceptions to this rule were in the Chevrolet field, where a special sales effort and contest was held and sales were larger than last year as a result. In other instances new models stepped up business.

Weather conditions were not good, and this is given as the principal cause of the month's slump.

Stocks of new cars are about 15 to 20 per cent larger than last year. The farmer trade is showing more signs of activity, and that is the best feature.

Used car business is not good and is behind that of November of last year. Inventories show extra heavy stocks of used cars on hand. Special sales efforts are being employed to move these stocks before the New Year.

Truck sales have been holding up rather good and business is slightly better than a year ago.

## San Francisco

Sales in Northern and Central California for November showed about 20 per cent improvement over November of last year and 15 per cent over October of this year, according to officials of dealer associations in San Francisco and Oakland. Torrential rains toward the last of the month held down sales and reduced the month's averages but the value of the rains to crops next year will more than offset losses in sales thus incurred.

Rebuilt used cars showed marked improvement in sales over any month of the past six. Truck sales were better than any other previous month of the year by nearly 30 per cent, largely due to the big return for the apricot crop in San Joaquin and Santa Clara valleys. A prevalent anticipation of price reductions furnished some sales resistance, the public seeming to be waiting for the shows.

## Chicago

Automobile retailing in the Chicago metropolitan zone and throughout Illinois was slow in November, being retarded naturally by seasonal buying apathy and emphatically checked by the first real visitation of cold and disagreeable winter weather. Snows and blizzards in different parts of the state helped in the sale of service and certain accessories but put a crimp in car sales.

Registration figures compiled by Robinson's Advertising Service, Springfield, show a decline for November of 33 per cent in new car registrations under October while the decline in Cook county was 26 per cent.

November's reverses, however, have by no means pitched the local trade in gloom as November is traditionally a

problematical, between-seasons month and slow-going was commonly expected. Many members of the trade hope to stimulate December business by stressing the automobile Christmas gift idea. Used car sales have held up fairly well but the winter is building up the usual accumulations.

## Salt Lake City

New car and new truck registrations in Utah for November were well under October's figures. During the four weeks ending November 27, 516 new cars and 89 new trucks were registered in the state, compared with 892 cars and 146 commercial vehicles for October.

A surprising number of dealers in the two largest cities of the state report their used car stocks at low, but on the whole the used car situation is bad, and getting worse. The exceptionally good weather has helped to make conditions in this respect better than they would have been otherwise.

The industrial situation is good, save for certain localities heavily interested in the sugar beet industry, which was a partial failure this year. Retail merchants in many lines are complaining of poor business.

## Milwaukee

It has been demonstrated perhaps more forcibly than ever before that unseasonable weather conditions exert an adverse effect on passenger car sales. In October, the last half of which brought cold weather and alternate snow and rain, Wisconsin new car sales dropped slightly below the total of October, 1925, it being the first month this year to show a loss. In November a similar situation has obtained. Beginning with a blizzard early in the month, there was snow on at least 20 out of 30 days.

Winter set in fully 45 days earlier than usual. Given more normal weather conditions in December, the local trade is confident that it will make up for losses in October and November.

Truck business is holding to a normal course, and while sales are less numerous all along the line, conditions are considered satisfactory.

## Louisville, Ky.

Passenger car sales during November showed a slight drop below October and a decrease from the November figures of last year of approximately 10 per cent. This condition is due entirely to the decreased sales of one make of light car which during the past two months has registered but 50 per cent of the sales made by this particular producer during the same period of 1925. The combined sales of all other makes show an increase over November, 1925, which indicates that while there was a decrease in the total units sold more money was spent for automobiles than

during the corresponding month of 1925.

Total sales for the eleven months of this year are approximately 10 per cent ahead of the same period of 1925, and dealers believe this percentage will be maintained by December sales, thereby setting a new high record in Jefferson County for any one year.

Used car stocks are normal, with dealers closely scrutinizing this branch of the business.

## Boston

The decline in sales that began in October continued its downward curve through November. To meet the decline a number of the dealers put on meetings and sales contests to keep up the morale of their salesmen and in this way managed to keep the sales from dropping too far below quotas. Out in the territory where the sub-dealers were operating sales were slow. In Northern New England snow hit in and this always is a factor in slowing up sales.

Used cars were moving along fairly well, but not to any great numbers. Special sales were featured here and there, but the results just about reached the breaking-even point.

Some of the truck people report that their average for the month has been fairly good. Between now and January 1 it is not expected that the sales will show any great signs of livening up.

## Des Moines

While new car sales in Iowa were larger during November than during the corresponding month last year, the total of new car registrations for the month will be considerably below the registrations of October. Five makes of cars represent about 80 per cent of car sales in Iowa, and of these five lines only one make shows any appreciable gain during November in Polk county sales.

Accessory business is slow, but the more staple items show good volume. Collections are slow.

## Birmingham

Business among automobile dealers in the Birmingham district was somewhat off during November, although there has been no serious slump in demand. The used car market is particularly quiet, and this fact causes the dealers to be wary of sales that involve trade-ins. The demand for new cars has been better than November of last year, on the whole.

October was more active than November.

Truck dealers of this district report that business continues about on a par with that of November last year. There has been a steady demand for new trucks, a surprisingly small percentage of trade-in sales and few re-possession. November truck sales, however, were under October.

## Jobbers Promise Aid in Shop Demonstration

### New York Show Is Assured Active Cooperation of Wholesalers

NEW YORK, Dec. 3.—Assurance of active cooperation in stimulating the interest of the trade in the shop equipment exhibits at the national automobile show was given representatives of the National Automobile Chamber of Commerce and the Motor and Accessory Manufacturers Association after they had addressed about 30 jobbers at a meeting in the Hotel Empire last night.

These jobbers agreed to put stickers advertising the exhibit on all outgoing mail and literature, and to distribute through salesmen credentials entitling dealers admission to the shop equipment sections during the hours set aside for their exclusive attendance. They also agreed to supplying salesmen to cooperate with the manufacturers at the shop equipment exhibits, and worked out plans for making as many actual sales as possible.

S. E. Nichols of the Elin Auto Supply Co. of Newark was chairman of the meeting, which was addressed by Neal G. Adair of the M. & A. M. A., R. W. Proctor of Black & Decker, B. M. Asch of B. M. Asch & Co., and G. W. Fleming of the Fleming Machine Co. A similar meeting is to be held in Chicago with F. G. Wacker, of the Automotive Maintenance Machinery Co., as representative of the M. & A. M. A., presiding.

#### Ackerman Launches Company

SYRACUSE, N. Y., Dec. 4.—S. E. Ackerman, sales manager of the Franklin Automobile Co., and for 17 years connected with that organization has severed his connection with the factory to handle the wholesale and retail sales of Franklin cars in Syracuse and Central and Northern New York. Mr. Ackerman has organized a \$150,000 company which will be known as the Ackerman Automobile Co., Inc., and will take over the local and Onondaga sales organization and holdings of the E. M. O'Donnell Co., Inc., present Syracuse distributors. Mr. O'Donnell will retire from the business. Franklin has not announced a successor to Mr. Ackerman as sales manager.

#### Profitable Selling Is Theme

CHICAGO, Dec. 4.—Profitable merchandising was the central thought at three meetings held in different sections of Chicago this week under the sponsorship of the Chicago jobber members of the Automotive Equipment Association. The meetings were addressed by M. D. Graham, special field representative of the A. E. A., and Sidney J. Stearn, of Automotive merchandising. Each of the three gatherings was well

attended by retailers, the Chicago Automobile Trade Association giving its cooperation in urging their presence.

In addition to general angles of accessory selling, the sale of maintenance through use of dependable equipment and parts, and special campaigning for Christmas sales of accessories figured in the discussions.

Cooperating with local trade associations the A. E. A. has scheduled Mr. Graham for talks at 44 meetings in Illinois between now and the latter part of January when he will participate in a similar campaign in Michigan.

#### Champion Back From Abroad

FLINT, Dec. 4.—Albert Champion, president of the AC Spark Plug Co. is home after visiting the company's factories at Birmingham, England, and Paris, France. Mr. Champion expressed his pleasure with the progress being made by both companies.

## Business Conditions

### Department of Commerce Gives View of Current Situation

Measured by the volume of check payments, business during the four weeks of November was slightly behind that of the preceding year, according to the weekly statement of the Department of Commerce. New building contracts also were less than during November of last year. Distribution of goods, however, as seen from figures on carloadings, was substantially ahead of last year. The production of bituminous coal and petroleum also registered advances over the preceding year, but the output of lumber and of beehive coke declined.

Receipts of cotton into sight continued to decline from recent high levels, but were still considerably above those of last year. Receipts of wool at Boston and of wheat at primary markets showed substantial declines from a year ago. Hog receipts were also less than last year, but cattle receipts increased. Exports of wheat, wheat flour and corn were substantially larger than in November a year ago.

Wholesale prices averaged higher than in October, but were considerably below last year. Loans and discounts of Federal reserve member banks were higher than at the end of the previous month and a year ago. Interest rates, both on time and call loans, averaged lower than in the same month of last year, time-money rates also being easier than at the end of October. Business failures were less numerous than in the previous month or in November, 1925.

## A.M.A. Gavel Handed Over to J. W. Anderson

### Officers for Next Year Are Elected at Regular Annual Meeting

CHICAGO, Dec. 4.—At the annual meeting last night of the Automotive Manufacturers Association presidency of the organization was formally passed over to John W. Anderson, of the Anderson Company, Gary, Ind., by G. F. Disher, of the Gemco Manufacturing Company, Milwaukee, who served in that capacity for the past year.

Mr. Anderson's election, as in the case of all other selections of the nominating committee, was without opposition. Other new officers are: first vice-president, John F. Shuford, Wedler-Shuford Co., St. Louis; second vice-president, C. D. Pettingell, Apco Manufacturing Co., Providence, R. I.

Directors elected are: J. A. Anderson, Stone Mfg. Co., Chicago; F. S. Armstrong, Vesta Battery Corp., Chicago; G. F. Disher, Gemco Mfg. Co., Milwaukee; B. J. Koral, E. Edelmann Co., Chicago; Elmer Rich, Simonize Co., Chicago; C. C. Seacrist, Victor Mfg. & Gasket Co., Chicago; James C. Shaw, Chicago Solder Co., Chicago; P. C. Thompson, Thompson-Neaylon Co., Chicago. Holdover directors are: A. R. Johnson, Jefferson Electric Mfg. Co., B. N. MacGregor, Packard Electric Co., Warren, O.; N. A. Petry, N. A. Petry Co., Inc., Philadelphia; and J. P. Whitaker, Whitaker Battery Supply Co., Kansas City.

The speaker of the evening was Edward Guthard, president of Lincoln Products Co., who presented many interesting points on merchandising automotive products in foreign markets.

#### Another Nash Record

KENOSHA, Wis., Dec. 6.—Production and sales by Nash in November established another new high record, according to E. H. McCarty, general sales manager of the Nash Motors Company. November sales were in excess of the figure for November, 1925, Mr. McCarty says. He announces further that sales for the first eleven months of 1926 exceeded the same period of 1925 by 45 per cent. Last year was the greatest single year in Nash history. The eleven months this year even exceeded by more than 2,000 cars the total sales for the first ten months of both 1924 and 1925.

## New Models and Price Changes in MOTOR AGE Tables December 9

Make	Model	Body Style	Old Price	New Price
Chandler	Big Six	DeLuxe Sedan	New Model	\$1695



## Bendix 4-Wheel Brakes Standard on Lincolns

### Cars with New Equipment Feature in Hands of Larger Dealers

DETROIT, Dec. 4.—Bendix four-wheel brakes of the internal shoe self-energizing type have been adopted as standard equipment on all Lincoln cars now being manufactured. For the new feature an extra charge of \$200 is made on all models. As Lincoln cars in the future will be provided with four-wheel brakes only, prices on all models will not list at \$200 higher.

For the past month Lincoln has been maintaining a 100 per cent production of the four-wheel brake models and the new cars are now in the hands of its larger dealers throughout the country.

With adoption of four-wheel brakes changes were necessary in the previous braking system. On the two-wheel brake models the service brake system was of the external contracting type while the hand brake was of the internal type, both systems operating on the rear wheels. With the new models the emergency brake actuates the external brakes previously operated by the foot pedal whereas the internal brake of the earlier emergency system now forms part of the service four-wheel brake system.

Along with this change the latest Lincolns are equipped with new type Parabeam headlights. For some time the engines have been fitted with a centrifugal type air cleaner while no other mechanical changes have been made in the chassis.

### Buick Promotes Churchill

FLINT, Mich., Dec. 6.—C. W. Churchill, director of sales of Buick Motor Co., today was appointed general sales manager of Buick, succeeding E. T. Strong who has been made president of the company. Mr. Churchill was born in Detroit 46 years ago and has been in the industry since 1904. In 1907 he was made sales manager of Winton and in 1915 he became general manager of Winton. In 1921 he was appointed director of sales of Buick.

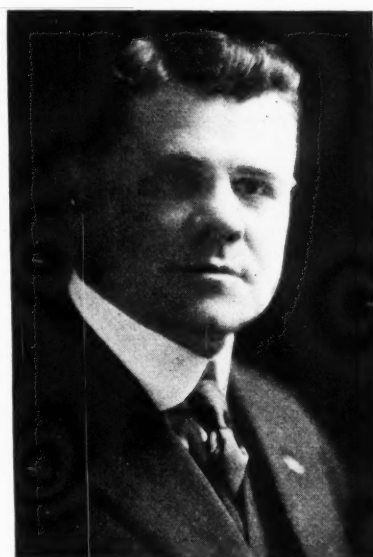
### Ford Plants Reopen

DETROIT, Dec. 6.—The Highland Park and River Rouge plants of the Ford Motor Company, closed since Tuesday night for inventory, reopened today and it is reported that a majority of the 100,000 employees returned to work.

### Hudson Orders Dividend

DETROIT, Dec. 4.—A quarterly dividend of 87½ cents payable Jan. 3, to stock of record, Dec. 15, has been declared by directors of the Hudson Motor Car Co.

### Buick's New President and Vice-President



Above—E. T. Strong  
Below—C. B. Durham

As announced in a news article published in the December 2 issue of MOTOR AGE E. T. Strong, formerly general sales manager, is the new president of the Buick Motor Company, succeeding the late H. H. Bassett. The appointment was made by A. P. Sloan, Jr., president of General Motors Corporation. At the same time C. B. Durham, Buick's assistant general manager was promoted to the post of vice-president of the company.

### Stearns Dealers Hold Salon

CLEVELAND, Dec. 4.—The Stearns factory announces that a national salon showing of Stearns-Knight cars will be held by dealers throughout the country Dec. 5 to 11.

## November Proves Year's Slowest Output Month

### Total Production for 1926 Is Brought to Approximately 4,272,000 Vehicles

NEW YORK, Dec. 8.—November production of cars and trucks is estimated at about 245,000 units, against 349,408 in October and 377,483 in November of 1925. The total for the year to date is thus brought to approximately 4,272,000 vehicles, against 4,336,271 for the entire year 1925. The November rate of output was the slowest of the year, and December production will probably be under November.

While the figures are definite evidence of general curtailment, the drop last month as compared with the rate of a year ago is largely attributable to lower operations by Ford. Other companies in November were less than 8 per cent under their totals for the same month of 1925.

Dealers' stocks are now fairly heavy, and it is plainly indicated that a considerable rise in demand for cars will be necessary before the factories begin to step up output. For the first nine months of 1926, retail sales were 16 per cent over the same period of 1925.

### Walker Vehicle Expands

BUFFALO, Dec. 4.—Announcement was made yesterday that the Walker Vehicle Company of Chicago has acquired control of the Automatic Transportation Company, Inc., of Buffalo. The announcement means the Walker organization now will engage in a diversified line of activities, instead of concentrating only upon the electric truck and tractor for street hauling as has been its policy in the past. With acquisition of the Buffalo company, there will be added to the range of Walker products a line of electric industrial trucks, tractors and locomotives for use in factories, warehouses, railroad terminals and general industrial establishments.

### U. M. S. Celebrates

DETROIT, Dec. 4.—The tenth anniversary of the United Motors Service was observed, this week, when the organization held its annual convention here which was addressed by various executives of United Motors and the General Motors Corp.

The United Motors is in the strongest position in its entire history, Ralph S. Lane, general manager, declared in opening the convention. The growth of United Motors from a single branch located in Chicago in 1916, developed the present organization which comprises upwards of 3,000 service contacts through its 23 direct branches, authorized service stations and authorized distributors.



## U. S. Car Production for October Put at 288,848

### Revised Total Shows Drop of 105,248 Below Month of 1925

WASHINGTON, Dec. 4.—A decrease of 105,248 passenger cars and 1,433 trucks, as compared with production in October, 1925, is noted in the revised figures on automobile production in the United States in October, 1926, compiled by the Automotive Division, Department of Commerce.

In October, 1926, production of passenger cars totaled 288,848, against 394,096 in October, 1925. Truck production in the United States last month totaled 42,890, against 44,323 in the same month last year. This is a decrease, in all, of 106,681 units.

As compared with the September figures this year, October production showed a decrease of 62,065 passenger cars and 3,538 trucks.

Total production for the 10 months ended Oct. 31 this year, however, showed an increase over production for the same period last year in both passenger cars and trucks, the passenger car figures for the period this year being 3,407,411, against 3,089,153 and the truck figures 428,931 this year against 407,828 last year. Figures on truck production also include buses, fire apparatus and street sweepers. Canadian production figures for October are not yet available.

#### Galveston's First Show

GALVESTON, Texas, Dec. 4.—The Galveston Automobile Dealers Association is planning its first annual automobile show. The show will be staged in connection with the International Exhibit to be held in January. It will open on the first day of the new year. It is said every dealer in Galveston will have displays at the show and that the factories have agreed to have their latest products here for display. The dealers are arranging to assign space. It is expected all plans for the show will be completed in the next few days.

#### U. S. Wants More Back Taxes

DETROIT, Dec. 4.—Details of transaction whereby Henry Ford acquired all the outstanding holdings in the Ford Motor Co., in 1919, will echo when the Government holds a special court in Detroit, seeking to collect \$34,077,324.72, alleged to be due in back income taxes from the nine persons who disposed of their interests in the company.

The Government has arranged for the court on tax appeals hold hearings here, beginning Jan. 11.

Original claims of the Government against the nine former Ford stock-

## Comparative Size of U. S. Automotive Exports Shown in Statistics

WASHINGTON, Dec. 4.—The ratio of the automotive export business in the United States, compared with the export business of the 18 leading commercial nations of the world, during the first eight months of this year, indicate that U. S. automotive exports were approximately 0.89 per cent of the total of the 18 nations, and four per cent of the total exports of this country, according to Department of Commerce figures.

The total export business of the 18 principal nations, first eight months of

this year, was \$28,385,700,000. Of this total, the United States exports were \$5,919,200,000, or approximately one-fifth of the total. Of the United States total exports, \$235,815,000 were automotive exports or approximately four per cent. Comparing the total \$28,385,700,000, being the total exports of the 18 nations, with the automotive exports of this country, \$235,815,000 the figures indicate that the automotive exports were slightly less than one per cent of the total.

holders aggregated \$38,177,323. An agreement with the tax commissioner reduced this amount approximately \$4,100,000. When the litigants sold their interests in the Ford company, in 1919, they received \$12,500 a share and some obtained \$13,000. At that time the Government collected taxes totaling \$20,000,000.

The Government collected 73 per cent of the profits made at that time. But this was based on an appraised value of \$9,489.34 per share, fixed by Commissioner Roper of the treasury department in 1913. This appraisal was too low, the Government contends.

#### Chevrolet Forces Gather

SAN FRANCISCO, Cal., Dec. 4.—Chevrolet dealers and salesmen to the number of 494 from all parts of northern California and Nevada recently met at a rousing get-together dinner in the banquet room of the Hotel St. Francis to discuss details of the Chevrolet factory expansion plan. Fred N. Coats, regional sales manager for Chevrolet on the Pacific coast, presided, and was assisted by executives from the factory in Oakland.

#### Hupp Six Sales Strong

DETROIT, Dec. 4.—Hupmobile Six sales, during the car's first year on the market, which ended Nov. 1, totaled more than 42,000, according to R. S. Cole, general sales manager of the Hupp Motor Car Corp. This compares with Hupp's best previous year record of 32,000. The first three months of the present fiscal year ending Oct. 30, the increase in total sales was 88.11 per cent greater than the same period a year ago. The increase in domestic sales was 95.84 per cent and export 37.22 per cent.

#### Offer Servicing Course

MILWAUKEE, Wis., Dec. 4.—A new course in automotive service engineering, designed for garage mechanics and electricians, has been established in Milwaukee by the Extension Division of the University of Wisconsin. Classes meet each Friday evening in the Extension headquarters and are directed by Prof. E. R. Consoliver, associate professor of mechanical engineering at the state university. He makes the trip from Madison to Milwaukee each Friday for two semesters of eighteen weeks each. He is nationally known in automotive engineering circles and is author of several texts.

#### To Distribute Jordan

BUFFALO, Dec. 4.—The Wells Motor Sales Company, formerly the Buffalo Wills-Sainte Claire Corporation, has been appointed new Jordan distributor for Buffalo and this territory. The company will distribute both the Wills-Sainte Claire and the Jordan cars.

### Promoted to Post of Vice-President



Moffett Photo

Bruce McDonald

PHILADELPHIA, Dec. 3.—Bruce McDonald has been appointed vice-president in charge of the Saf-De-Lite Sales Corporation. He was formerly assistant sales manager of the company and still earlier was eastern distributor for another company manufacturing automobile lamps.

## Are Your Used Cars Piling Up on You? Here's One Way to Move Them



View of "Used Car Show" held recently by the Drennen Motor Car Co., of Birmingham, Ala.

Drennen Motor Car Co., Cadillac and Buick distributors at Birmingham, Ala., recently staged a used car show of its own that was productive and helped diminish the used car problem that faces many members of the trade at this time. The show ran for the week beginning Nov. 22 and it was announced with a full page advertisement in the Birmingham papers.

New cars took a temporary back seat in the main display room, this spacious section of the Drennen plant being given over to used cars. The company's effort was confined to reconditioned cars, no "as is" cars being represented. These cars were displayed in a setting of decorations as catchy as those usually honoring introductions of new models, there was an orchestra and other frills. The sale, which was highly successful, was under the direction of E. L. Scouten, manager of the used car department, and W. B. Lawson, assistant manager.

## NEW Automotive Literature

**MOTOR VEHICLES AND THEIR ENGINES** by Edward S. Fraser and Ralph B. Jones. A revised and enlarged edition, the third, has been issued. The book contains more than 400 pages and covers all the operating parts of the automobile. It is abundantly illustrated with drawings and halftones. Published by D. Van Nostrand Co., 8 Warren st., New York, N. Y. Price \$3 a copy.

**THE MOTOR INDUSTRY OF GREAT BRITAIN.** The Society of Motor Manufacturers and Traders of London, England, has published under this title a book of 150 pages containing a comprehensive statistical record of the automotive industry in the British Empire. The book corresponds in many respects to *Facts and Figures of the Automotive Industry* published in the United States by the National Automobile Chamber of Commerce. The price per copy is 2 shillings.

### Girl Re-elected

DETROIT, Dec. 4.—Christian Girl has been re-elected president of the C. G. Spring and Bumper Co. Other officers elected by the board of directors are: Charles Getler, vice-president; Fred A.

Cornell, secretary and M. D. Harrison, treasurer.

The stockholders at the annual meeting held recently, elected the following directors: Christian Girl, A. H. Goss, F. C. Finkenstaedt, J. G. Hamblen, Jr., J. S. Clary, Charles Getler, R. A. Forsythe, F. A. Cornell and M. D. Harrison.

### Crawford Vice-president

DETROIT, Dec. 4.—H. H. Crawford, of the Crawford-Lewis Co., distributors for Pines Winterfront has been elected vice-president and sales manager of the Pines Winterfront Co. He will continue to maintain his headquarters in the Stephenson Building, Detroit.

### Murray Sale Approved

DETROIT, Dec. 4.—The sale of the Murray Body Corp. to J. Horace Harding and Casimir Stralen, representing the reorganization committee, for \$5,000,000, has been approved by Federal Judge Charles C. Simons.

### Pontiac Dealers Gather

ALTOONA, Pa., Dec. 4.—Pontiac dealers of Altoona and Blair county held a get-together meeting at the Penn Alto hotel. The session was arranged by the Binder-McNelis Company, the local Pontiac distributors, for its sale force and associate dealers. Several factory representatives were present.

## M. & A.M.A. Members' November Business Dips

### Think Quiet Period Will Continue Until Around First of the Year

NEW YORK, Dec. 4.—Sales of automotive replacement parts, accessories, shop equipment and tools declined in November, continuing the recession in October, according to figures which have been compiled by the Motor and Accessory Manufacturers' Association.

While October business was somewhat ahead of September, it was under that of October last year, on the basis of reports received from automobile equipment wholesalers in various parts of the United States and Canada.

The M. & A. M. A. general index figure for October, on the basis of 100 for January, 1925, was 123 as compared with 147 for September, 152 for August and 133 for July.

The general impression in the trade was that the quiet period would continue until around the first of the year, when the national automobile shows and other trade activities would stimulate business.

### Buy Earl Factory

JACKSON, Dec. 4.—The Hancock Manufacturing Co., of Charlotte, Mich., manufacturers of automobile hardware, has purchased the Earl Motors factory and will move here. The factory was acquired to give the Hancock concern an opportunity to expand. The company has been in business at Charlotte for 20 years.

### Acme Buys United

DETROIT, Dec. 4.—C. F. Williams, president of the Acme Motor Truck Co. of Cadillac, has announced that his company has purchased the United Motor Products Co. of Grand Rapids, manufacturers of United States motor trucks. The purchase includes material on hand and right to the trade name "United."

According to Mr. Williams the United Co. will be moved to Cadillac where his company will continue to manufacture the United line in addition to the Acme truck. G. R. Wilbur, general manager of the United company will be in charge of United sales.

### Dealers to Stage Parade

CHARLOTTE, N. C., Dec. 4.—A spectacular parade of automobiles, arranged to emphasize the Santa Claus Idea, was decided upon by the Charlotte Automotive Merchants' Association as a feature of the opening the middle of this month of the association's annual Christmas sales campaign. Approximately 55 members of the association will participate and will share the expenses of an extensive advertising and publicity campaign.



## Ten Day Show Instead Of 16 New Dallas Plan

### Association Gives Gavel to Ray Shelton for the Coming Year

DALLAS, Tex., Dec. 4.—Ray Shelton was elected president of the Dallas Automotive Trades Association at the recent annual meeting. Howard Bramley was elected vice-president and D. F. Rolater treasurer. S. B. Scruggs and W. A. Perry were named by the wholesalers group as directors and A. M. Ferguson was named as a director of the retail group.

The annual report of the president and recommendations of the board suggesting that employes of automotive concerns be encouraged to buy their own homes and that the annual show of the organization be held for ten days in the future instead of sixteen as in the past was indorsed. The association decided to celebrate three full and two half holidays during the coming years and voted to keep establishments closed on Sundays.

The reports of the officers indicated the business of the members of the organization has enjoyed a prosperous year. Nathan Adams, president of the American Exchange National Bank discussed business conditions and present day business standards and methods.

#### Election at Fresno

FRESNO, Cal., Dec. 4.—The Fresno Automobile Dealers' Association has elected H. S. Childers, Nash distributor, president; H. J. M. Lake, manager Don Lee, Inc., of Fresno, vice-president; and C. E. Appling, secretary-treasurer; with the following directors; J. E. Rodman, J. W. McAllister, Eliot E. Bradley, T. P. Shelton, and Murphy Pierson.

#### To Discuss Show Problems

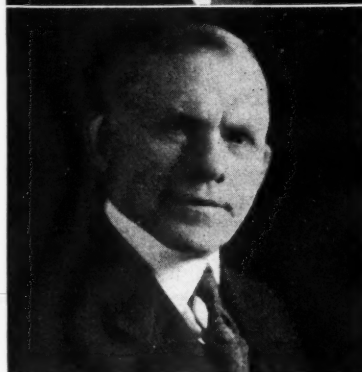
PHILADELPHIA, Dec. 4.—The board of directors of the Philadelphia Automobile Trade Association has invited secretaries and show managers of 27 associations in the East to attend a conference in Philadelphia for the discussion of show management problems. The exchange of ideas is expected to be mutually helpful. At the present time there is no intention of effecting an organization.

Among principal speakers will be W. H. Metcalf, secretary of the Philadelphia association, and A. V. Comings, editor of Automobile Trade Journal, and secretary of the National Association of Show & Association Managers.

#### Hear Gaylord Ford

ALTOONA, Pa., Dec. 4.—The Blair County Automobile Dealers' Association held a dinner meeting at Beam's cafe and was attended by seventy-five

### New Officers of Denver Trade Association



Above—Ralph M. Fishel, new president of Denver dealer body. Below—H. M. Allison, new vice-president.

DENVER, Colo., Dec. 4.—The Denver Automobile Dealers' Association at its annual meeting and dinner elected the following officers for 1927:

President, Ralph M. Fishel, Fishel-Walker Buick Co.; vice-president, H. M. Allison, president Allison Motors Co.; secretary and manager, Tom Braden. C. E. Freeland, Durant Motors, and A. F. Broadhead of Tom Botterill, Inc., were elected members of the board.

Reports showed the association to have concluded a very successful season, and its collateral association. The Denver Used Car Dealers' Association, to have greatly improved the used car situation.

automobile dealers, salesmen and bankers from all sections of the county. Gaylord H. Ford of the National Automobile Dealers' Association was introduced as the principal speaker of the evening and spoke at length on the automobile industry in the United States and on subjects of interest to all of the dealers present.

## Portland Dealers Name Henry Ward President

### More Than 250 Firms Now Display the "Winged Wheel" Emblem

PORTLAND, Ore., Dec. 4.—Henry Ward, well-known automotive maintenance specialist, was elected president of the Portland Automotive Trades Association at the annual meeting. Mr. Ward succeeds George L. Sammis who was elected to the board of directors.

The new president of the trades association takes the helm with the organization in the most flourishing condition in its history. More than 250 automotive concerns in Portland are co-operating through this body to improve service to the car owner by guaranteeing the quality of work rendered by those who display the "winged wheel" emblem.

One hundred and fifty members of the local association attended the meeting. In addition to Mr. Ward as president, T. L. Montieth was elected first vice-president, C. A. Bankhead, second vice-president; Charles Emery, third vice-president and A. E. Foss, secretary.

#### Plan Annual Meeting

DETROIT, Dec. 4.—Eddie Edinburn, manager of the Michigan Automotive Trade Association, is making preparations for the seventh annual meeting of the association, which will be held at the Book-Cadillac hotel, in Detroit, Jan. 26.

Since its organization, seven years ago, the association, which is made up of most of Michigan's progressive dealers has accomplished much, both along legislative lines and also in bringing about a better understanding in the trade. It is expected that a speaker of national reputation will be a feature for the 1927 meeting.

#### Macaulay Banquet Chairman

NEW YORK, Dec. 6.—Alvan Macaulay, president and general manager of the Packard Motor Car Co., has been appointed chairman of the committee in charge of the National Automobile Show banquet by the board of directors of the National Automobile Chamber of Commerce under whose auspices the show and banquet are held.

Reports submitted to the board on the World Motor Transport Congress indicated that between 500 and 600 delegates from foreign countries will attend.

#### Caron Launching Agency

DETROIT, Dec. 6.—John Caron has resigned as advertising manager of the Wills-St. Clair Co. and is forming an advertising agency at Port Huron, Mich.



# Coming Motor Events

## Automobile Shows

**1927 NATIONAL SHOWS**  
New York.....Jan. 8-15  
Chicago.....Jan. 29-Feb. 5

Akron, O.....Feb. 5-12  
Goodrich Bldg.  
Albany, N. Y.....Feb. 26-March 5  
State Armory  
Allentown, Pa.....Feb. 28-March 5  
Manhattan Auditorium  
Altoona, Pa.....June 11  
Atlantic City.....April 30  
Baltimore, Md.....Jan. 22-29  
5th Regiment Armory  
Boston, Mass.....March 5-12  
Mechanics Bldg.  
Brooklyn.....Jan. 22-29  
Twenty-third Regiment Armory  
Buffalo.....Jan. 15-22  
174th Regiment Armory  
Camden, N. J.....Feb. 7-12  
Convention Hall  
Charlotte, N. C.....May 9  
Chicago.....Jan. 10-15  
American Road Builders' Association, Coliseum  
Chicago.....Jan. 29-Feb. 5  
Annual Salon, Hotel Drake  
Cincinnati.....Jan. 15-22  
Music Hall  
Cleveland.....Jan. 22-29  
Public Auditorium  
Cumberland, Md.....Jan. 31-Feb. 5  
Armory  
Deadwood, S. D.....Feb. 21-26  
Auditorium  
Denver, Colo.....Feb. 14-19  
Auditorium  
Detroit.....Jan. 22-29  
Convention Hall  
Des Moines.....Feb. 14-19  
Coliseum  
Fort Wayne, Ind.....Feb. 14-19  
Shrine Auditorium  
Fort Worth, Texas.....March 5-12  
Grand Rapids, Mich.....Jan. 17-22  
Armory  
Fresno, Cal.....April 28  
Harrisburg.....Jan. 29-Feb. 5  
Hartford, Conn.....Feb. 19-26  
State Armory  
Huntingdon, W. Va.....Feb. 21-26  
Vanity Fair Bldg.  
Indianapolis.....Feb. 14-19  
Auto Show Bldg.  
Kansas City, Mo.....Feb. 12-19  
American Royal Building  
Lancaster, Pa.....Feb. 1-5  
Arcade Garage  
Los Angeles.....Feb. 12-19  
Annual Salon, Hotel Biltmore.

Los Angeles.....Feb. 26-March 6  
Annual Show, Los Angeles Motor Car Dealers' Association.  
Louisville, Ky.....Feb. 14-19  
Jefferson County Armory  
Milwaukee.....Jan. 15-22  
Auditorium  
Minneapolis.....Feb. 5-12  
Overland Bldg.  
Montreal, Can.....Jan. 22-29  
National Motor Show of Eastern Canada, Morgan Bldg.  
Muskegon, Mich.....Feb. 15-19  
Armory  
Newark, N. J.....Jan. 15-22  
Twentieth Annual Newark Automobile Show.  
Omaha, Neb.....Feb. 21-26  
22nd Annual Automobile Show, City Auditorium.  
Paterson, N. J.....Jan. 31-Feb. 5  
Armory  
Peoria, Ill.....Feb. 14-19  
Armory  
Philadelphia.....Jan. 15-22  
Commercial Museum  
Providence, R. I.....Feb. 5-12  
Cranston Street Armory  
Rocky Mount, N. C.....April 4-8  
Tobacco Warehouse  
Quebec, Can.....March 1-8  
Drill Hall  
Rochester.....Jan. 24-29  
Edgerton Park  
Saginaw, Mich.....March 9-12  
San Bernardino, Cal.....Feb. 17-27  
National Orange Show Bldg.  
San Francisco.....Jan. 29-Feb. 5  
Exposition Auditorium  
Scranton, Pa.....Jan. 24-29  
Armory  
Sheboygan, Wis.....Feb. 14-20  
New Eagles Auditorium  
Sioux City, Iowa.....March 3-6  
Auditorium  
Sioux Falls, S. D.....March 2-5  
Springfield, Ill.....Feb. 9-12  
State Arsenal  
Springfield, Mass.....Feb. 28-March 5  
Municipal Auditorium  
Springfield, O.....Jan. 17-22  
Memorial Hall  
St. Louis, Mo.....Feb. 21-26  
Union Market Bldg.  
Syracuse.....Feb. 7-12  
State Armory  
Troy, N. Y.....Jan. 22-29  
State Armory  
Toledo.....Feb. 7-12  
Civic Center Garage  
Washington, D. C.....Jan. 29-Feb. 5  
Worcester, Mass.....Feb. 10-12  
Waterbury, Conn.....Jan. 24-29  
State Armory

Wichita, Kans.....Feb. 22-25  
Exposition Bldg.  
Wilkes-Barre, Pa.....Jan. 31-Feb. 5  
Matheson Exposition Bldg.  
Williamsport, Pa.....Jan. 24-29  
Susquehanna Trail Garage

## Races

A. A. A.

Los Angeles, Cal.....Dec. 12  
Altoona, Pa.....June 11  
Altoona, Pa.....Sept. 5  
Atlantic City.....April 30  
Atlantic City.....Sept. 24  
Charlotte, N. C.....May 9  
Charlotte, N. C.....Nov. 11  
Detroit.....Sept. 10  
Fresno, Cal.....April 21  
Indianapolis.....May 30  
Los Angeles.....Feb. 22  
Los Angeles.....April 10  
Los Angeles.....Nov. 27  
Salem, N. H.....June 25  
Salem, N. H.....Oct. 12  
Syracuse, N. Y.....Aug. 27 or Sept. 3

## Conventions

Automotive Service Association of New York, banquet, Hotel Astor Feb. 17  
California Automobile Trade Association, Hotel Richelieu, San Francisco Dec. 17-18  
Michigan Automotive Trade Association, Book-Cadillac, Detroit Jan. 26  
Motor and Accessory Manufacturers Association, dinner, New York Jan. 12  
National Association of Automobile Show and Association Managers, New York Jan. 12  
National Association of Automobile Show and Association Managers, Drake Hotel, Chicago Feb. 3  
N. A. C. C.  
Chicago, Feb. 1—Service Meeting.  
New York, Jan. 10-11—Third World Motor Transport Congress.  
New York, Jan. 11—Service Meeting.  
New York, Jan. 11—Banquet.  
National Automotive Parts Association, Book-Cadillac, Detroit Jan. 27-28  
National Automobile Dealers Association, Hotel Commodore, New York Jan. 10-11  
National Automobile Dealers' Association, Hotel La Salle, Chicago Feb. 1-3  
S. A. E.  
Detroit, Jan. 25-28—Annual Meeting.  
Detroit, Jan. 28—Carnival.  
New York, Jan. 13—Banquet.

## COMING FEATURE ISSUES OF CHILTON CLASS JOURNAL PUBLICATIONS

December 10—Operation and Maintenance—Service Station Equipment Issue  
December 15—Commercial Car Journal—Good Roads Issue  
January 1—Automobile Trade Journal—Annual Show Issue  
January 6—Motor Age—Annual Show Issue  
Jan. 15—Commercial Car Journal—New York Show Issue  
January 27—Motor Age—Chicago Show Issue

### Huge Task for Judges

DETROIT, Dec. 4.—Prizes in the Jewett slogan contest will be awarded about Christmas time, the Paige-Detroit Motor Car Co. announced.

The contest closed at midnight, Oct. 31, and the judges now face the task

of picking the three winners from 402,733 suggestions which were submitted by the public during the contest. As first prize the company is awarding \$10,000 cash, while new Jewett sedans will be given as second and third prizes, respectively.

### To Sell Studebaker

SPRINGFIELD, Ill., Dec. 4.—W. D. and J. B. Newman of Centralia have been appointed Studebaker dealers for the Springfield territory and have taken over the local agency at 314-318 East Washington Street.

# Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE	SHIP WT. PASS. BODY STYLE. PRICE
<b>AUBURN "4-44"</b>	<b>Special Six (115 in. W. B.)</b>	<b>DUESENBERG</b>	<b>HUDSON "Super Six"</b>
..... 5-p Touring \$1,145	2890 5-p Touring \$1,145	..... Straight "8"	3395 7-p Phaeton \$1,250
..... 5-p Roadster 1,145	2940 5-p Sport Touring 1,295	3970 4-p Roadster 1,295	3440 5-p Coach 1,095
..... 2-p Coupe 1,175	2995 2-p Coupe 1,195	3700 5-p Phaeton 1,295	..... Spec. Coach 1,150
..... 5-p Sedan 1,195	2995 2-p De Luxe Coupe 1,285	3980 4-p Sp. Phaeton 1,295	3560 4-p Brougham 4d. 1,395
..... "6"	3200 5-p Sedan 1,295	4115 5-p Sedan 1,295	3685 7-p Sedan 1,495
..... 2-p Roadster \$1,095	<b>CHEVROLET "V"</b>	4500 7-p Sedan 1,295	<b>HUPMOBILE</b>
..... 5-p Touring 1,195	1785 2-p Roadster \$510	↑Manufacturers do not quote	<b>"A"</b>
..... 5-p Brougham 1,195	1865 5-p Touring 510	list prices.	2620 5-p Touring \$1,325
..... 5-p Sedan 1,295	2005 2-p Utility Coupe 645	<b>DU PONT</b>	..... 2-4-p Roadster 1,385
..... 5-p Wanderer Se'n 1,345	2110 5-p Coach 645	..... "E"	2800 5-p Sedan 1,385
..... "6-66"	2185 5-p Sedan 735	..... "F"	2800 2-4-p Coupe 1,385
2850 4-p Sp. Roadster \$1,395	2185 5-p Landau Sedan 765	3700 4-p Roadster \$2,800	3300 5-p Touring \$1,945
2850 6-p Touring 1,395	<b>CHRYSLER</b>	3350 5-p Touring 2,800	3360 7-p Touring 2,045
..... 3-p Coupe 1,445	<b>"50"</b>	3350 4-p Coupe 3,200	3355 2-4-p Roadster 2,045
3020 5-p Brougham 1,495	2145 5-p Touring \$750	4100 5-p Sedan 3,400	3465 2-4-p Coupe 2,345
3070 5-p Sedan 1,695	2025 2-p Roadster 750	<b>ELCAR</b>	..... 5-p Brougham 2,245
3070 5-p Wanderer 1,745	2130 2-4-p Roadster 795	..... "4-55"	3545 5-p Sedan 2,345
..... "8-77"	2230 2-p Coupe 750	2560 5-p Touring \$1,095	..... 5-p Victoria 2,345
..... 2-p Roadster \$1,395	2235 5-p Coach 780	2710 4-p Roadster 1,285	3580 5-p Berline 2,445
..... 5-p Brougham 1,495	2410 5-p Sedan 830	2900 5-p Coach 1,195	..... 7-p Sedan 2,495
..... 5-p Sedan 1,695	<b>"60"</b>	2050 3-p Coupe 1,295	..... 7-p Sedan Lim. 2,595
..... 5-p Wanderer Se'n 1,745	2575 5-p Touring \$1,075	2779 5-p Sedan 1,395	<b>JEWETT</b>
..... "8-88"	2545 2-p Roadster 1,145	..... "6-65"	..... 5-p Touring \$1,150
(129 in. W. B.)	2605 2-4-p Roadster 1,175	2780 5-p Touring \$1,295	2660 5-p Brougham 1,195
3180 4-p Sp. Roadster \$1,695	2690 2-p Coupe 1,125	2840 4-p Roadster 1,495	2760 5-p 4d. Sedan 1,295
3200 5-p Touring 1,695	2780 5-p Coach† 1,145	2980 3-5-p Landau R'dster 1,675	<b>JORDAN</b>
..... 3-p Coupe 1,745	2840 5-p Sedan 1,245	2779 5-p Coach 1,395	..... "J"
3280 5-p Brougham 1,795	<b>"70"</b>	2980 3-p Coupe 1,495	2915 4-p Playboy Road. \$1,845
3450 5-p Sedan 1,995	2845 2-4-p Roadster \$1,495	2900 5-p Sedan 1,595	3200 5-p Sedan 1,945
3450 5-p Wanderer 2,045	2930 7-p Phaeton 1,395	..... "8-81"	3200 4-p Victoria 1,945
..... (146 in. W. B.)	..... 5-p Sp. Phaeton 1,495	3675 7-p Touring \$2,265	3200 2-4-p Sport. Coupe 2,195
..... 7-p Sedan \$2,495	..... 4-p Coupe 1,495	3000 3-p Coupe R'dster 2,195	3200 4-p Cus. Victoria 2,195
<b>BUICK</b>	3000 2-4-p Royal Coupe 1,545	3620 3-5-p Landau R'dster 2,295	3200 5-p Cus. Sedan 2,195
..... "115"	3090 5-p Brougham 1,525	3590 4-p Coupe 2,095	<b>Series "AA"</b>
2845 2-4-p Roadster \$1,195	3150 5-p Royal Sedan 1,595	3795 5-p Sedan 2,265	3470 5-p Sedan \$2,495
2955 5-p Touring 1,225	3160 5-p Crown Sedan 1,795	4245 7-p Sedan 2,765	3470 4-p Victoria 2,495
3020 2-4-p Coupe 1,195	<b>"80"</b>	<b>ESSEX</b>	<b>KISSEL</b>
3150 5-p 2d. Sedan 1,195	(185½ in. *)	..... "Six"	..... "55"
3116 4-p Coupe 1,275	3765 5-p Phaeton \$2,545	2260 5-p Touring \$765	(124 in. W. B.)
3230 5-p 4d. Sedan 1,295	3805 2-4-p Roadster 2,595	2500 5-p Coach 695	3020 5-p Phaeton \$1,585
..... "120"	4235 5-p Sedan 3,095	2540 5-p Sedan 4d. 795	3660 7-p Touring 1,685
(120 in. W. B.)	..... (192½ in. *)	<b>FLINT</b>	3065 2-p Speedster 1,795
3800 4-p Coupe \$1,465	4090 4-p Coupe \$2,895	..... "Z-18"	3225 4-p Tourster 1,795
3670 5-p 2d. Sedan 1,395	4065 2-p Cabriolet 3,495	2525 5-p Coach \$ 960	3160 4-p Speedster 1,895
3765 5-p 4d. Sedan 1,495	..... (198½ in. *)	2580 5-p DeL. Coach 1,075	3190 2-p Speedster 2,085
..... "128"	4450 7-p Sedan \$3,295	..... "B-60"	3275 4-p Speedster (Enc.) 2,185
(128 in. W. B.)	4260 7-p Sedan Lim. 3,595	2745 4-p Roadster \$1,360	..... 2-p Coupe R'dster 1,795
3570 4-p Sp. Roadster \$1,495	4265 5-p Town Car 5,495	2750 5-p Touring 1,260	..... 4-p Coupe R'dster 1,895
3635 5-p Sp. Touring 1,525	†Cloth Upholstery. Leather at	2885 4-p Sp. Roadster 1,495	3300 5-p Brougham 1,695
3805 4-p Country Club 1,765	extra cost.	2890 4-p Coupe Roadster 1,495	..... 5-p Spec. Bro'm 1,795
..... 5-p Coupe 1,850	†Overall length.	3030 5-p Sedan 4d. 1,495	3440 5-p Bro'm Sedan 1,895
..... 3-5-p Coupe 1,925	<b>CUNNINGHAM</b>	3010 5-p Brougham 1,450	..... 5-p Spec. Bro'm 2,095
3940 5-p Brough. Sedan 1,925	..... "V-6"	<b>FORD</b>	<b>"75"</b>
4025 7-p Sedan 1,995	4500 4-p Sp. Touring \$6,150	..... With Starter, Dem. Rims and	(131 in. W. B.)
<b>CADILLAC</b>	4600 7-p Touring 6,650	..... Balloon Tires	..... (132 in. W. B.)
..... "314" Standard Line	4700 4-p Coupe 7,600	1655 2-p Runabout \$360	3590 5-p Bro'm Sed. \$2,585
(132 in. W. B.)	5000 6-p Limousine 8,100	1728 5-p Touring 380	4010 7-p Sedan DeLuxe 3,085
4170 5-p Brougham \$2,995	<b>DAGMAR</b>	1860 2-p Coupe 485	3640 7-p Berline Sed. 3,185
4105 2-p Coupe 3,100	..... "6-70"	1972 5-p Tudor Sedan 495	..... "75"
4190 5-p Victoria 3,195	3750 4-p Roadster \$3,500	2004 5-p Fordor Sedan 545	(131 in. W. B.)
4270 5-p Sedan 3,250	3800 4-p Sp. Tourer 3,500	<b>FRANKLIN</b>	..... (139 in. W. B.)
4460 2-p Sport Coupe 3,500	3700 4-p Phaeton 3,500	..... "11"	3910 5-p Bro'm Sedan 3,485
4590 5-p Sport Sedan 3,650	4200 4-p Petite Coupe 4,500	2800 3-p Sport Road. \$2,690	4080 7-p Sedan DeLuxe 3,985
..... (138 in. W. B.)	4200 4-p Petite Sedan 4,500	2965 3-p Coupe 2,645	4125 7-p Berline Sed. 3,585
4370 7-p Sedan \$3,400	4500 4-p De Luxe Coupe 4,750	..... 5-7-p Sedan 2,840	<b>LINCOLN "8"</b>
4480 7-p Imperial 3,535	4700 5-p Sedan 4,700	..... 5-p Oxford Sedan 2,865	4760 2-p Sport R'dster \$4,500
..... Custom Built	4800 7-p Sedan 4,750	3080 5-p Sport Sedan 2,910	4810 7-p Sport Touring 4,500
(132 in.)	..... "6-60"	3275 7-p Limousine 2,990	4880 4-p Sport Phaeton 4,500
4220 2-p Roadster \$3,350	3150 5-p Touring \$1,785	3135 7-p Cabriolet 4,400	4610 4-p Coupe 4,600
4300 2-p Conv't Coupe 3,450	3100 2-p Roadster 1,985	<b>GARDNER</b>	4885 4-p Sedan 4,800
..... (138 in. W. B.)	3200 4-p Sp. Touring 1,985	..... 6B	4760 5-p Sedan 4,900
4285 7-p Touring \$3,450	3500 5-p Sedan 2,445	..... 5-p Sedan \$1,595	4890 7-p Sedan 5,100
4275 5-p Phaeton 3,450	<b>DAVIS</b>	..... "80"	4945 7-p Limousine 5,300
4465 5-p Sp. Phaeton 3,975	..... "92-27"	..... "90"	<b>LOCOMOBILE</b>
4465 5-p Coupe 3,855	2915 5-p Legion. Tour. \$1,495	..... Roadster \$1,395	..... "Jr. 8"
4465 5-p Sedan 3,995	3000 5-p Sedan 1,595	..... Sedan 1,695	3035 4-p Roadster \$2,150
4580 7-p Suburban 4,125	3060 5-p Imperial Sedan 1,795	..... Roadster \$1,995	3055 5-p Touring 1,785
4615 7-p Imperial 4,350	..... "93-27"	..... Brougham 2,295	3335 5-p Sedan 2,285
<b>CASE</b>	2325 5-p Touring \$1,285	..... Victoria 2,790	3330 5-p Brougham 2,285
..... J. I. C.	2450 3-p Coupe 1,285	..... 5-7-p Sedan 2,840	..... "90"
3260 3-p Roadster \$1,840	<b>DIANA "St. 8"</b>	..... 5-p Oxford Sedan 2,865	4475 4-p Sportif \$5,500
3290 5-p Touring 1,885	2995 5-p Roadster \$1,795	3275 7-p Limousine 2,990	4370 4-p Roadster 5,980
3470 5-p Sp. Touring 2,160	2995 5-p Palm Bch. Rds. 1,995	3135 7-p Cabriolet 4,400	4680 4-p Victoria Coupe 6,950
3640 5-p Sedan 2,590	3170 5-p DeL. Bro'm 1,995	<b>HERTZ</b>	4842 5-p Victoria Sedan 7,300
3650 5-p Brougham 2,590	3275 5-p De Luxe Sedan 2,195	..... "D-1"	4615 7-p Cabriolet 7,500
..... "Y"	3160 5-p Cabriolet 2,095	3587 5-p Touring 1,995	4930 7-p Suburban 7,500
3950 7-p Touring \$2,225	3640 7-p Berline Sedan 2,895	3720 5-p Sedan 1,995	4615 7-p Brougham 7,500
4320 7-p Sedan 2,975	3640 5-p Town Car 5,000	<b>CHANDLER BIG SIX</b>	
3200 2-4-p Roadster \$1,695	<b>DODGE BROTHERS</b>	..... Standard Six	
3330 5-p Touring 1,545	2448 2-p Roadster \$ 795	(108½ in. W. B.)	
3345 7-p Touring 1,645	2538 2-p Special Roadster 845	2475 5-p Touring \$ 945	
3570 5-p 20th C'y Sedan 1,495	2567 5-p Touring 795	2565 5-p De Luxe Tour. 1,005	
3570 5-p Met. Sedan 1,595	2642 5-p Spec. Touring 845	2470 3-4-p Sport R'dster 1,135	
3485 4-p Coupe 1,675	2497 2-4-p Sport Roadster 945	2685 5-p Sedan 995	
..... 5-p DeLuxe Sedan 1,695	2589 2-p Coupe 845	2620 2-p Coupe 1,035	
3725 7-p Sedan 1,795	2632 2-p Spec. Coup 895	2685 5-p De Luxe Sedan 1,095	
..... Standard Six	2811 5-p Sedan 895	2620 2-p De Luxe Coupe 1,125	
(108½ in. W. B.)	2883 5-p Spec. Sedan 945		
2475 5-p Touring \$ 945	2920 5-p DeL. Sedan 1,075		
2565 5-p De Luxe Tour. 1,005			
2470 3-4-p Sport R'dster 1,135			
2685 5-p Sedan 995			
2620 2-p Coupe 1,035			
2685 5-p De Luxe Sedan 1,095			
2620 2-p De Luxe Coupe 1,125			



# Prices and Weights of Current Passenger Car Models

SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE				SHIP WT. PASS. BODY STYLE. PRICE			
<b>LOCOMOBILE—Continued</b>				<b>OAKLAND</b>				<b>PIERCE-ARROW</b>				<b>ROLLS-ROYCE</b>			
<b>"48"</b>				<b>"6"</b>				<b>"80"</b>				Manufacturers do not quote list prices.			
5030	4-p	Sportif	\$7,460	2500	5-p	Touring	\$1,025	3285	2-p	Runabout	\$2,895	<b>STAR</b>			
5330	7-p	Touring	7,460	2590	4-p	Sp. Roadster	1,175	3300	4-p	Phaeton	3,095	<b>"4"</b>			
5640	7-p	Touring Lim.	9,500	2620	5-p	Phaeton	1,095	3440	7-p	Phaeton	2,895	1850	2-p	Conv't R'dster	\$550
5600	5-p	Victoria Sedan	10,050	2745	5-p	2d. Sedan	1,095	3470	5-p	Coach 2d.	2,995	1905	5-p	Touring	550
5464	6-p	Brougham	10,040	2705	3-p	Landau Coupe	1,125	3405	2-p	Coupe	3,100	1965	2-p	Coupe	875
5868	7-p	Enc. Dr. Lim.	10,050	2855	5-p	4d. Sedan	1,195	3525	5-p	Coach 4d.	3,250	2120	5-p	Coach	695
5624	7-p	Cabriolet	10,300	2885	5-p	Landau Sedan	1,295	3620	7-p	Coach	3,350	2190	5-p	Sedan 4d.	795
<b>McFARLAN "6"</b>				<b>OLDSMOBILE</b>				<b>"36"</b>				<b>Standard "6"</b>			
<b>"SV"</b>				2200	5-p	Touring	\$875	3655	7-p	Enc. Dr. Lim.	4,045	2075	5-p	Touring	\$725
3700	2-p	Roadster	\$2,650	2317	4-p	DeL. Roadster	975	3675	7-p	Lim. Coach	3,450	2160	2-4-p	Sp. Roadster	910
.....	2-p	Spec. Roadster	2,900	2400	5-p	DeL. Touring	980	<b>"36"</b>				2100	2-p	Coupe	820
3600	5-p	Touring	2,650	2347	2-p	Coupe	925	4445	2-p	Runabout	\$5,875	2245	5-p	Coach	890
.....	7-p	Touring	2,750	2450	5-p	Coach	950	4480	4-p	Touring	5,875	2355	5-p	Sedan	975
.....	5-p	Brougham 4d.	3,180	2470	2-p	DeLuxe Coupe	990	4585	7-p	Touring	5,875	2365	5-p	Landau Sedan	995
3850	4-p	Coupe	3,180	2620	5-p	DeLuxe Coach	1,050	4760	3-p	Coupe	6,375	2150	2-4-p	Sp. Coupe	995
3850	5-p	Sedan	3,180	2510	5-p	Sedan	1,025	4800	4-p	Sedan	6,375	<b>STEARNS-KNIGHT</b>			
.....	5-p	Spec. Sedan	3,180	2690	5-p	DeLuxe Sedan	1,125	4770	4-p	Coupe Sedan	5,875	<b>"6-85"</b>			
3850	7-p	Sedan	3,280	2705	5-p	Landau	1,190	4840	7-p	Enclosed Lim.	5,875	4185	2-p	Roadster	\$3,250
.....	5-p	Sub. Sedan	3,380	<b>OVERLAND</b>				4840	7-p	French Lim.	7,500	4285	4-p	Touring	3,250
.....	7-p	Sub. Sedan	3,480	1985	.....	Touring	\$645	4840	7-p	Enc. Dr. Land.	6,000	4640	2-p	Cab-Roadster	3,550
<b>"TV"</b>				2130	2-p	Coupe	685	4760	7-p	Sedan Landau	6,000	4290	4-p	Coupe	3,350
4000	2-p	Roadster	\$5,400	2075	5-p	Sedan	695	4880	4-p	Lim. Encl.	6,375	4407	5-p	Std. Sedan	3,350
4600	4-p	Sp. Touring	5,600	<b>"93"</b>				4800	4-p	Sedan Landau	6,600	4515	5-p	Custom Sedan	3,350
4900	4-p	Coupe	6,720	2395	5-p	Touring	\$825	4880	4-p	Encl. Landau	6,600	4505	7-p	Sedan	3,550
5200	4-p	Tour. Sedan	6,720	2397	2-p	Coupe	825	4740	7-p	French Landau	8,000	4650	5-p	Std. Sedan Lim.	3,550
5200	7-p	Tour. Sedan	6,810	2443	5-p	Std. Sedan	835	<b>PONTIAC</b>				4650	5-p	Cus. Sedan Lim.	3,550
.....	6-p	Sedan	6,720	2583	5-p	DeLuxe Sedan	975	<b>"Six"</b>				4800	7-p	Sedan Lim.	3,750
.....	7-p	Sedan	6,810	<b>PACKARD</b>				2395	2-p	Coupe	\$825	<b>STUDEBAKER</b>			
.....	7-p	Spec. Sedan	6,810	.....	4-p	Roadster	\$2,685	2450	5-p	2d. Sedan	825	<b>Standard Six</b>			
.....	7-p	Enc. Sedan	7,110	.....	5-p	Phaeton	2,585	2455	5-p	Landau Sedan	895	2700	3-p	Du. Roadster	\$1,160
.....	7-p	Sub. Sedan	7,110	.....	4-p	Coupe	2,685	2420	2-p	DeLuxe Coupe	895	2765	3-p	Sport Roadster	1,250
5200	7-p	Town Car	9,000	.....	5-p	Sedan	2,585	2565	5-p	DeL. Lan. Sed.	975	2830	5-p	Du. Phaeton	1,180
<b>"Straight 8"</b>				<b>(133 in. W. B.)</b>				<b>REO</b>				2875	3-p	Country Club	1,295
3400	2-p	Roadster	\$2,650	.....	7-p	Touring	\$2,785	3375	2-p	Roadster	\$1,665	2945	5-p	Coach	1,230
3400	4-p	Roadster	2,900	.....	7-p	Sedan	2,785	3182	5-p	Sp. Touring	1,395	3115	5-p	Sedan	1,330
3400	5-p	Touring	2,650	.....	5-p	Club Sedan	2,725	3365	2-p	Coupe	1,495	3235	5-p	Custom Sedan	1,385
3450	7-p	Touring	2,750	.....	7-p	Sedan Lim.	2,885	3365	2-p	Spec. Coupe	1,565	3180	.....	Cus. Victoria	1,335
3650	5-p	Sedan	3,180	<b>"8"</b>				3515	5-p	Sedan 4d.	1,565	<b>Special Six</b>			
3650	5-p	Sub. Sedan	3,380	.....	4-p	Runabout	\$3,850	3565	5-p	Spec. Sedan	1,745	3500	4-p	Sp. Phaeton	\$1,630
3700	7-p	Sedan	3,280	.....	5-p	Phaeton	3,750	<b>REVERE</b>				3495	5-p	Du. Phaeton	1,480
3700	7-p	Sub. Sedan	3,480	.....	4-p	Coupe	4,750	<b>"25"</b>				3470	5-p	Coach	1,480
3650	4-p	Coupe	3,180	.....	5-p	Sedan	4,750	3900	2-p	Sp. Roadster	\$2,750	3620	5-p	Brougham	1,830
3650	5-p	Coach Brough.	3,180	.....	7-p	Touring	\$3,950	3975	4-p	Speedster	2,750	<b>Big Six</b>			
3750	5-p	Town Car	4,600	.....	5-p	Club Sedan	4,390	4050	5-p	Touring	2,750	<b>(120 in. W. B.)</b>			
<b>MARMON</b>				.....	7-p	Sedan	5,000	4300	5-p	Sedan	3,800	3270	3-p	Du. Roadster	\$1,530
<b>"75"</b>				.....	7-p	Sedan Lim.	5,100	<b>"M"</b>				3400	4-p	Sport Roadster	1,680
4251	2-p	Speedster	\$3,485	<b>PAIGE</b>				3975	4-p	Sporster	3,200	3405	5-p	Sport Phaeton	1,610
4256	4-p	Speedster	3,485	.....	4-p	Roadster	\$1,540	3970	5-p	Touring	3,200	3510	5-p	Club Coupe	1,480
.....	5-p	Phaeton	3,485	.....	5-p	Brougham	1,395	4000	5-p	Sedan	4,000	3705	4-p	Cus. Victoria	1,735
.....	7-p	Tour. Speedster	3,565	.....	5-p	Landau Bro'm	1,395	<b>RICKENBACKER</b>				3835	5-p	Custom-Bro'm	1,785
.....	2-p	Coupe R'dster	3,565	.....	5-p	Sedan	1,540	3038	5-p	Touring	\$1,750	<b>(127 in. W. B.)</b>			
.....	5-p	Town Coupe	3,195	.....	4-p	Roadster	\$1,540	3068	7-p	Touring	1,795	3630	7-p	Du. Phaeton	\$1,810
.....	2-p	Coupe	3,485	.....	5-p	Brougham	1,395	3116	4-p	Roadster	1,795	3910	5-p	Brougham 4d.	2,130
4846	4-p	Victoria	3,485	.....	5-p	Landau Bro'm	1,395	3202	5-p	Coupe-Sedan	1,495	4050	7-p	The President	2,245
.....	5-p	Brougham	3,565	.....	5-p	Sedan	1,540	3202	5-p	Brougham	1,695	<b>STUTZ</b>			
4498	5-p	Sedan	3,565	<b>"6-75"</b>				3317	5-p	Coupe Roadster	1,920	<b>"A-A"</b>			
4620	7-p	Sedan	3,640	.....	4-p	Roadster	\$1,540	3353	7-p	Sedan	2,195	<b>(131 in. W. B.)</b>			
.....	5-p	Custom Sedan	3,960	.....	5-p	Brougham	1,395	3445	5-p	Coupe Sedan	2,095	4164	2-p	Speedster	\$2,995
.....	7-p	Custom Sedan	4,075	.....	5-p	Landau Bro'm	1,395	3486	5-p	Brougham	2,195	4175	4-p	Speedster	2,995
.....	7-p	Custom Lim.	4,175	.....	5-p	Sedan	1,540	3345	4-p	Coupe Roadster	2,320	4390	5-p	Brougham	2,995
<b>MOON</b>				.....	5-p	DeLuxe Sedan	2,995	3603	5-p	Sedan	2,495	4416	5-p	Sedan	2,995
<b>"6-60"</b>				2295	3-5-p	Roadster	\$ 995	3640	7-p	Sedan	2,595	4273	4-p	Vic. Coupe	2,995
2330	.....	DeL. Roadster	1,095	.....	4-p	Roadster	\$1,540	.....	4-p	Sup. Sp. Sedan	5,000	4286	2-p	Coupe	2,995
2340	5-p	Phaeton	995	.....	5-p	Brougham	1,395	<b>"B-8"</b>				<b>(145 in. W. B.)</b>			
2420	5-p	Coach	995	3215	5-p	Phaeton	1,095	3227	4-p	Roadster	\$2,195	4656	7-p	Sedan	\$3,635
2520	.....	DeL. Broug.	1,095	3315	5-p	Landau Bro'm	1,395	3315	5-p	Touring	2,150	4731	7-p	Sedan Lim.	3,785
2575	.....	Cab. Roadster	1,195	3280	5-p	Sedan	1,540	3355	7-p	Touring	2,195	<b>VELIE</b>			
2605	.....	4d. Sedan	1,195	<b>PEERLESS</b>				.....	4-p	Sup. Sp. Road-	3,250	<b>"Spec. 60"</b>			
<b>Series "A"</b>				3275	2-p	Sp. Roadster	\$2,195	3445	5-p	Coupe Sedan	2,095	3025	5-p	Club Phaeton	\$1,450
2600	5-p	Roadster	\$1,395	3300	7-p	Phaeton	1,995	3486	5-p	Brougham	2,195	2908	3-p	Coupe	1,450
2560	5-p	Touring	1,195	3700	7-p	Sedan	2,595	3345	4-p	Coupe Roadster	2,320	3175	5-p	Sedan	1,450
2720	5-p	Cab. Roadster	1,595	3825	7-p	Limousine	2,695	3603	5-p	Sedan	2,495	3340	5-p	Royal Sedan	1,785
3710	5-p	DeL. Bro'm.	1,395	3675	5-p	DeLuxe Sedan	2,795	3640	7-p	Sedan	2,595	3350	5-p	DeLuxe Sedan	2,050
2860	5-p	DeL. Sedan 4d.	1,545	3650	7-p	DeLuxe Sedan	2,995	.....	4-p	Sup. Sp. Sedan	5,000	<b>"Std. 50"</b>			
<b>NASH</b>				<b>"6-80"</b>				<b>ROAMER</b>				<b>(112 in. W. B.)</b>			
<b>"Light Six"</b>				2800	5-p	Phaeton	\$1,395	.....	5-p	Spec. Tourer	\$1,295	2900	5-p	Sedan	\$1,045
2275	5-p	Touring	\$865	2895	5-p	Roadster	1,495	.....	5-p	Spec. Sp. Tourer	1,395	<b>WILLS SAINT-CLAIRE</b>			
2310	2-p	Coupe	925	.....	2-4-p	Coupe Roadster	1,565	.....	2-p	Bus. Coupe	1,395	<b>"T-6" (127 in. W. B.)</b>			
2475	5-p	Sedan	995	2950	5-p	Sedan 2d.	1,545	3445	5-p	Coupe Sedan	2,095	3675	5-p	Traveler	\$2,700
<b>"Special"</b>				3140	5-p	Std. Sedan	1,595	.....	5-p	Coupe	1,395	3580	4-p	Roadster	2,700
2900	2-p	Roadster	\$1,115	3140	5-p	Sport Sedan	1,795	3486	5-p	Sedan DeLuxe	1,695	3750	4-p	Cab. Roadster	3,350
2980	5-p	Touring	1,135	.....	5-p	DeLuxe Sedan	1,795	.....	5-p	.....	.....	3900	5-p	Std. Sedan	3,150
2980	4-p	Roadster	1,225	.....	.....	.....	.....	.....	.....	.....	.....	3970	7-p	Sedan	3,250
3030	2-p	Business Coupe	1,165	.....	.....	.....	.....	.....	.....	.....	.....	4080	7-p	Limousine	3,350
3150	5-p	Sedan 2d.	1,215	<b>"6-90"</b>				<b>"6-54-E"</b>				<b>WILLIS-KNIGHT</b>			
3170	5-p	Sedan	1,315	.....	2-4-p	Sport Roadster	.....	.....	4-p	Roadster	\$2,385	<b>"66"</b>			
<b>"Advanced"</b>				.....	.....	Coupe R'dster	\$1,725	.....	4-p	Tourer	1,985	3323	2-p	Roadster	\$1,850
<b>(121 in. W. B.)</b>				.....	5-p	Sedan	1,895	.....	7-p	Tourer	2,285	3395	5-p	Touring	1,750
3390	4-p	Roadster	\$1,475	.....	.....	Sedan	1,895	.....	3-p	Cabriolet	2,750	3566	7-p	Touring	1,950
3400	5-p	Touring	1,340	.....	.....	Landaulet	1,995	.....	5-p	Sedan	2,950	.....	2-4-p	Coupe	2,295
3550	5-p	Sedan 2d.	1,425	<b>"8-69"</b>				<b>"4-75-E"</b>				3604	4-p	Coupe	2,195
3650	5-p	Sedan	1,525	.....	.....	.....	.....	.....	.....	.....	.....	3686	5-p	Sedan	2,295
<b>"Advanced"</b>				3675	.....	Roadster	\$2,995	.....	2-p	Speedster	\$3,485				



# Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL				ENGINE										ELECTRICAL SYSTEM		REAR AXLE		BRAKES		Chassis Lubrication—Type and Make		ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS												
Wheel Base (Inches)	Tire Size	Decimals-Balloons	Make and Model	Number and Stroke	Rated H.P.	N.A.C.C.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bearings	Crankshaft Vibration	Oiling System	Cooling System	Thermostat?	Radiator?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Clear Ratio	Foot—Type and Location	Hand—Type and Location	4-Wheel Type	Optional	Length				
4-44	120	30x35	25	Lyc.....CF	4-3/8x5	21.0	206	L	He	Al	5	Y	P.C.	N	Th	N	N	Zen	N	Remy	P.B.&B.	W.G.	m-U.P.	1/2 Sal	5.10	E-F	E-T	H	Ros	S-56 1/2	Oe-Ju	A-K—Atwater-Kent		
Auburn.....	120	30x35	25	Lyc.....4SM	6-3/8x4 1/2	19.8	185	L	Ch	Ch	4	N	P.C.	N	Pu	N	N	Seh	N	Remy	P.Long	W.G.	m-U.P.	1/2 Col	5.10	B-F	E-T	M	Ros	S-57	Pr-Det	A-L—Auto-Lite		
Auburn.....	121	30x35	25	Lyc.....4HM	8-3/8x4 1/2	25.3	224	L	Ch	Ch	5	N	P.C.	N	Pu	N	N	Seh	N	Remy	P.Long	W.G.	m-U.P.	1/2 Col	5.10	B-F	E-T	M	Ros	S-57	Pr-Det	Al—Alameda		
Auburn.....	129	30x35	77	Lyc.....4HM	8-3/8x4 1/2	33.8	299	L	Ch	Ch	5	N	P.C.	N	Pu	N	N	Seh	N	Remy	P.Long	W.G.	m-U.P.	1/2 Col	5.10	B-F	E-T	M	Ros	S-57	Pr-Det	Alm—Almet		
115	114 1/2	31x35	25	Own.....Std	6-3/8x4 1/2	23.4	207	I	He	Ch	4	Y	P.C.	N	Pu	Y	N	Mar	Y	Delco	Delco	D.Own	m-Own	1/2 Own	4.30	E-F	E-T	M	Jac	V-48	Pr-Ze	B&B—Borg & Beck		
120 & 128	120-128	32x36	60	Own.....Mas	6-3/8x4 1/2	29.4	274	I	He	Ch	4	Y	P.C.	N	Pu	Y	N	Mar	Y	Delco	Delco	D.Own	m-Own	1/2 Own	4.70	E-F	E-T	M	Jac	V-47 1/2	Pr-Ze	B-L—Brown-Lipe		
Cadillac.....	132-138	32x36	75	Own.....4SM	6-3/8x4 1/2	31.2	314	L	Ch	Ch	3	N	P.C.	N	Pu	Y	N	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Own	4.91	B-F	E-T	H	Ros	S-60	Pr-Al	Bal—Ball & Ball		
Case.....	Y	132	34x37	30	Con.....6J	6-3/8x5	33.1	321	L	Ch	Ch	4	N	P.C.	N	Pu	Y	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Own	4.45	E-F	E-T	H	Ros	S-57	Pr-Sa	Ba—Basic cups		
Case.....	JIC	122	32x36	20	Con.....8R	6-3/8x4 1/2	27.3	242	L	He	Ch	4	Y	P.C.	N	Pu	Y	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Own	4.90	E-F	E-T	H	Ros	S-54 1/2	Pr-Sa	Car—Carter		
Big 6	124	32x36	60	Own.....Big 6	6-3/8x4 1/2	29.4	289	L	Ch	Ch	4	Y	P.C.	N	Pu	Y	N	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Own	4.45	E-F	E-T	M	Own	S-54 1/2	Bowen	CAS—CAS Products		
Chandler.....	108 1/2	30x36	75	Own.....Std	6-3/8x4 1/2	23.4	210	L	Ch	Ch	3	Y	P.C.	N	Pu	Y	N	Th	Y	D-R	D-R	P.B.&B.	W.G.	m-Spl	1/2 Own	4.90	E-F	E-T	M	Own	S-51	Bowen	Cle—Cleveland	
Chandler.....	Spec 6	115	31x35	25	Con.....Spec 6	6-3/8x4 1/2	23.4	219	L	Ch	Ch	4	Y	P.C.	N	Pu	Y	N	Th	Y	D-R	D-R	P.B.&B.	W.G.	m-Spl	1/2 Own	4.90	E-F	E-T	M	CAS	S-54	Bowen	Cli—Climax
Chevrolet.....	V	103	30x34	40	Own.....Sup	4-3/8x4 1/2	21.8	171	I	He	Ch	3	P.S.	N	Pu	N	N	Car	N	Remy	Remy	P.Own	m-Own	1/2 Own	3.82	E-R	E-T	N	Pr-Al	S-54	Bowen	Con—Continental		
Chrysler.....	"80"	185-198 1/2	30x36	75	Own.....	6-3/8x5	29.4	288	L	Ch	Spe	7	Y	P.F	Y	Pu	Y	N	Str	Y	Remy	P.Own	m-U.P.	1/2 Own	4.18	E-F	E-T	II	Ros	S-58	Pr-Ze	Col—Columbia		
Chrysler.....	"50"	153 1/2	29x4	75	Own.....	4-3/8x4 1/2	21.0	170	L	He	Al	3	Y	P.C	N	Th	N	Str	N	Remy	Remy	P.Roc	f	1/2 Own	4.64	E-F	E-T	N	Ros	S-53	Ow	Col—Columbia		
Chrysler.....	"60"	156 1/2	29x4	75	Own.....	6-3/8x4 1/2	21.6	180	L	Ch	Al	3	Y	P.C	N	Th	N	Str	N	Remy	Remy	P.Roc	f	1/2 Own	4.9	E-F	E-T	N	Ros	S-53 1/2	Pr-Ze	De—DeLton		
Chrysler.....	"70"	162 1/2	30x36	60	Own.....	G-6-3/8x4 1/2	23.4	218	L	Ch	Spe	7	Y	P.F	N	Pu	Y	N	Bal	Y	Remy	P.Roc	m-U.P.	1/2 Own	4.30	E-F	E-T	H	Ros	S-51 1/2	Pr-Ze	De—Dot		
Daimler.....	V-6	132-142	32x36	75	Own.....V8	6-3/8x5	45.0	442	L	He	Ch	4	N	P.C	N	Pu	Y	N	Bal	Y	Delco	Delco	D.Own	m-U.P.	1/2 Own	4.23	E-F	E-T	H	Ros	S-52	Pr-Ze	D-R—Delco-Remy	
Daimler.....	6-60	120	32x36	20	Lyc.....4S	6-3/8x4 1/2	25.3	224	L	He	Ch	4	N	P.C	N	Pu	Y	N	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Sal	5.10	E-R	E-T	H	Ros	S-52	Pr-Al	Dyn—Duryon	
Daimler.....	6-70	138	33x36	30	Con.....6J	6-3/8x5	33.8	331	L	He	Ch	4	Y	P.C	N	Pu	Y	N	Seh	N	Delco	Delco	D.Own	m-Spl	1/2 Sal	4.90	E-R	E-T	H	Ros	S-52	Pr-Al	Dyn—Duryon	
Daimler.....	9-27	115	32x36	60	Con.....11U	6-3/8x4 1/2	33.8	320	L	Ch	Ch	7	Y	P.C	N	Pu	Y	N	Seh	N	Delco	Delco	D.Own	m-Pet	1/2 Col	4.90	E-F	E-T	H	Ros	S-52	Pr-Al	Eat—Eaton	
Daimler.....	9-27	109	29x36	95	Con.....20L	6-3/8x4 1/2	18.1	169	L	Ch	Ch	4	Y	P.C	N	Pu	Y	N	Th	Y	Delco	Delco	D.Own	m-Pet	1/2 Col	5.30	E-F	E-T	H	Ros	S-51 1/2	Pr-Al	Flt—Flint	
Daimler.....	St. 8	125 1/2	32x36	60	Con.....122	6-3/8x4 1/2	25.3	240	L	Ch	Ch	4	Y	P.C	N	Pu	Y	N	Th	Y	Delco	Delco	D.Own	m-Mec	1/2 Col	5.10	E-F	E-T	H	Ros	S-54 1/2	Pr-Al	Full—Fuller	
Daimler.....	St. 8	116	31x35	25	Own.....	4-3/8x4 1/2	24.0	212	L	He	Al	3	N	P.C	N	Pu	Y	N	Seh	Y	N-E	N-E	D.Own	m-Own	1/2 Own	4.16	E-R	E-T	H	Ros	S-55	Pr-Al	Gdr—Goodrich	
Daimler.....	St. 8	134-141	33x35	20	Own.....A	6-2/8x5	26.4	260	L	Bo	Al	3	N	P.C	N	Pu	Y	N	Seh	Y	N-E	N-E	D.Own	m-Own	1/2 Own	4.90	E-F	E-T	H	Ros	S-55	Pr-Ze	Hoo—Hoosier	
Daimler.....	4-55	125	32x36	20	Wia.....	Y-6-3/8x5	27.3	268	L	Ch	Ch	3	N	P.C	N	Pu	Y	N	Seh	Y	Bosch	Bosch	D.Own	m-Alm	1/2 Col	4.7	E-F	E-T	H	Ros	S-50	Pr-Ze	Hoo—Hoosier	
Daimler.....	4-55	116	30x35	25	Lyc.....CE	4-3/8x4 1/2	21.8	213	L	He	Al	3	N	P.C	N	Pu	Y	N	Swan	N	Remy	P.Own	m-Alm	1/2 Sal	4.82	E-F	E-T	H	Ros	S-51	Pr-Al	Joh—Johnson		
Daimler.....	6-65	116	30x35	25	Lyc.....4HM	6-3/8x4 1/2	23.4	224	L	Ch	Ch	4	Y	P.C	N	Pu	Y	N	Swan	N	Remy	P.Own	m-Mec	1/2 Sal	4.82	E-F	E-T	H	Ros	S-51	Pr-Al	Joh—Johnson		
Daimler.....	8-81	127	32x36	60	Lyc.....4HM	6-3/8x4 1/2	33.8	299	L	Ch	Ch	4	Y	P.C	N	Pu	Y	N	Swan	N	Remy	P.Own	m-Mec	1/2 Sal	4.82	E-F	E-T	H	Ros	S-51	Pr-Al	Jun—Jeune		
Daimler.....	8-81	127	32x36	60	Lyc.....4HM	6-3/8x4 1/2	33.8	299	L	Ch	Ch	4	Y	P.C	N	Pu	Y	N	Swan	N	Remy	P.Own	m-Mec	1/2 Sal	4.82	E-F	E-T	H	Ros	S-53	Bowen	Le—Leese		
Daimler.....	8-81	132	32x36	20	Own.....	6-2 1/8x4 1/2	17.3	145	L	Ch	Al	3	N	P.S	N	Th	N	Ste	N	Bosch	Bosch	D.Own	m-Spl	1/2 Own	5.60	E-R	E-T	N	Own	S-54 1/2	Ow	Lav—Lavine		
Daimler.....	6	110 1/2	30x4	75	Con.....9L	6-2 1/8x4 1/2	16.9	169	L	Ch	Ch	3	N	P.C	N	Pu	Y	N	Job	N	A-L	A-L	m-U.M.	1/2 Own	4.87	E-F	E-T	N	Own	S-52	Ow	Lyc—Lycoming		
Daimler.....	Z-18	110	30x5	77	Con.....9L	6-2 1/8x4 1/2	25.3	230	L	Ch	Ch	4	N	P.C	N	Pu	Y	N	Job	N	A-L	A-L	m-U.M.	1/2 Own	4.87	E-F	E-T	N	Own	S-52	Ow	M&E—Merchant & Evans		
Daimler.....	B-60	115	30x5	77	Con.....9L	6-2 1/8x4 1/2	25.3	230	L	Ch	Ch	4	N	P.C	N	Pu	Y	N	Job	N	A-L	A-L	m-U.M.	1/2 Own	4.87	E-F	E-T	N	Own	S-51 1/2	Pr-Ze	Mar—Marvel		
Daimler.....	E-80	120	32x36	20	Con.....6E	6-3/8x5	27.3	268	L	Ch	Ch	7	Y	P.C	N	Pu	Y	N	Str	Y	Delco	Delco	P.Own	m-Spl	1/2 Own	4.77	E-F	E-T	H	Ros	S-55	Pr-Ze	Mec—Mechanics Machine	
Daimler.....	ord	100	29x4	40	Own.....	11-3/8x4 1/2	22.5	177	L	He	Ch	4	N	P.C	N	Th	N	Hol	N	Own	Own	D.Own	m-Spl	1/2 Own	3.63	E-T	E-T	N	Own	O-43 1/2	OG	Mun—Muncie		
Daimler.....	Franklin	111	31x35	25	Own.....	11-3/8x4 1/2	25.3	199	L	He	Ch	4	N	P.C	N	Th	N	Hol	N	Own	Own	D.Own	m-Spl	1/2 Own	3.63	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68	118	31x35	25	Lyc.....4SM	6-3/8x4 1/2	25.3	224	L	Ch	Ch	7	Y	P.C	N	Th	N	O	N	Own	Own	D.Own	m-Spl	1/2 Own	4.73	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68	122	30x35	25	Lyc.....4SM	6-3/8x4 1/2	25.3	224	L	Ch	Ch	7	Y	P.C	N	Th	N	O	N	Own	Own	D.Own	m-Spl	1/2 Own	4.73	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68	122	30x35	25	Lyc.....4SM	6-3/8x4 1/2	25.3	224	L	Ch	Ch	7	Y	P.C	N	Th	N	O	N	Own	Own	D.Own	m-Spl	1/2 Own	4.73	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68	122	30x35	25	Lyc.....4SM	6-3/8x4 1/2	25.3	224	L	Ch	Ch	7	Y	P.C	N	Th	N	O	N	Own	Own	D.Own	m-Spl	1/2 Own	4.73	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68	122	30x35	25	Lyc.....4SM	6-3/8x4 1/2	25.3	224	L	Ch	Ch	7	Y	P.C	N	Th	N	O	N	Own	Own	D.Own	m-Spl	1/2 Own	4.73	E-T	E-T	N	Own	O-43 1/2	OG	NE—North East		
Daimler.....	68																																	

# VALVE FACE GRINDING MACHINE

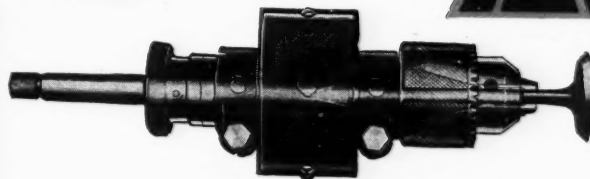
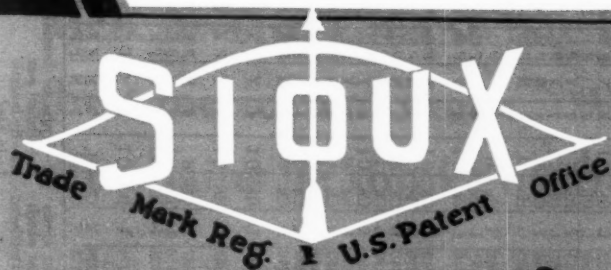
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Grinding  
Valve Face



Patent  
applied  
for

Net Price  
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The perfected Sioux Chucking System  
guarantees accuracy within .001 inch.

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Investigate the  
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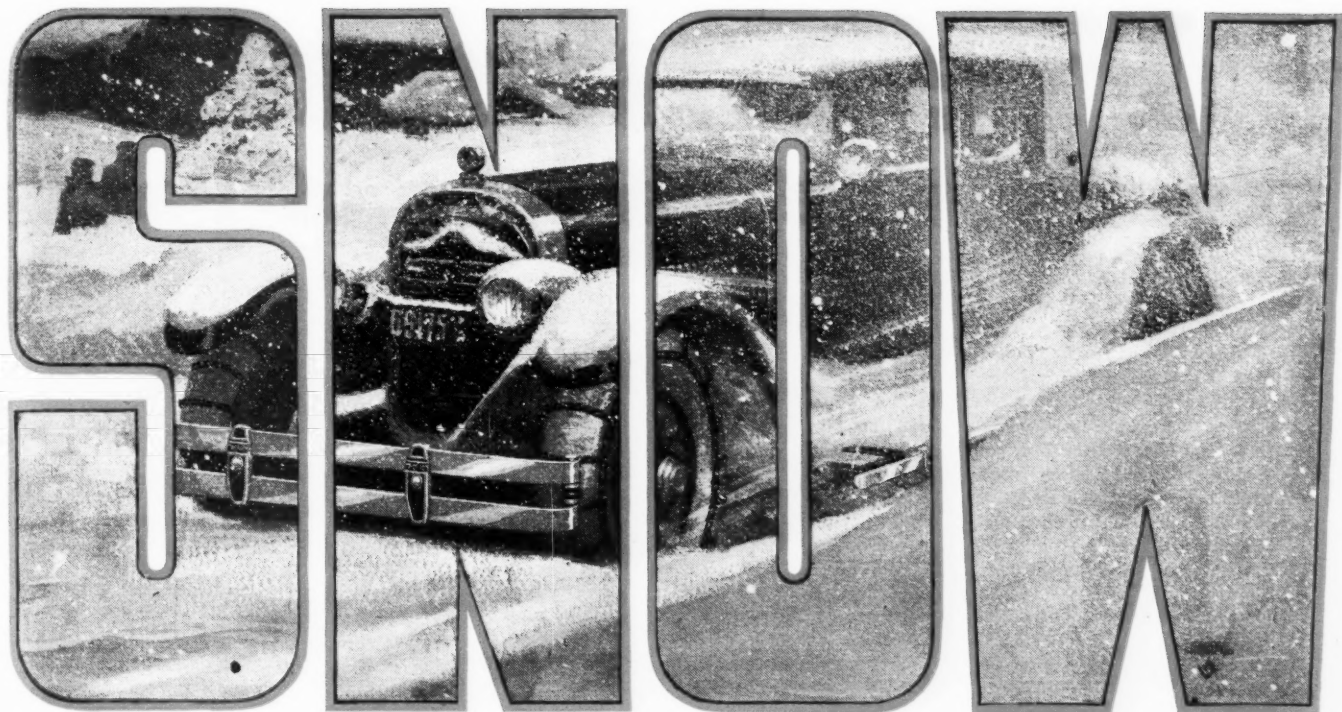
ALBERTSON & CO.  
SIOUX CITY, IA.



# Mechanical Specifications of Current Passenger Car Models—Continued (From page 40)

MAKE AND MODEL		Wheel Base (Inches)	Tire Size	Decimals-Balloons	Model	Number of Cyls.	Rated H.P.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vib.	Oil Cleaner?	Cooling System	Radiator?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	REAR AXLE		BRAKES		Steering Gear—Make	Rear Springs—Type and Make	Chassis Lubrication—Type and Make	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS		
																								Type and Make	Gear Ratio	Foot—Type and Location	Hand—Type and Location	Wheel Type (Optional)					
Lecmobile.	Jr. 8	124	30x5.77	Own. Jr. 8-2444	25.3	199	I	Ch.	Ch.	C.I.	5	Y	P.F.	Pu.	N	N	Str.	Y	Delco.	DeJo.	P.Spi.	War.	m-U-M.	1/4 Ada.	4.77	I-F.	I-R.	Se	War.	S-55 1/2	Pr-Ze.	A-K—Atwater Kent	
	48	142	33x6.75	Own. 48-6-3455	48.6	525	T	Ch.	He.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	Wes.	P.Own.	Own.	m-Spl.	1/4 Est.	3.50	B-F.	I-R.	M	Ros.	Pr-Ze.	A-L—Auto-Lite		
	49	138	33x6.75	Own. 49-6-3455	36.0	372	T	Ch.	He.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.Own.	Own.	m-Spl.	1/4 Est.	3.50	B-F.	I-R.	M	Ros.	Pr-Ze.	A-L—Auto-Lite		
	75	136	32x6.75	Own. 75-6-3455	33.8	340	I	He.	Ch.	C.I.	3	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(m-Spl.)	1/4 Own.	1.19	I-F.	I-R.	M	Gem.	Tr-45	Bowen	B-B—Borg & Beck	
	SV	127	33x6.20	Wia. Y 6-3455	27.3	268	I	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	D.Long.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ba—Basic cups		
	SL 8	131	33x6.20	Lyo. 4H 8-3455	33.8	299	T	Ch.	Ch.	C.I.	5	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ch—Cleveland		
	TV	141 1/2	33x6.75	Own. TV 6-4126	48.6	575	T	Ch.	He.	A.L.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ch—Cleveland		
	Series A	113	30x5.25	Con. 77C 6-3455	23.4	196	T	Ch.	Ch.	C.I.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ch—Cleveland		
	6-60	110	29x4.75	Con. Spec. 6-3455	19.8	185	L	Ch.	Ch.	C.I.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ch—Cleveland		
	Light Six	108	30x4.75	Own. 261 6-3455	21.6	170	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	W.G.	m-Cle.	1/4 Tim.	4.27	E-F.	E-T	H	Ros.	Ow...	Ch—Cleveland		
Nash.	Advanced	121-127	33x6.00	Own. 261 6-3455	28.4	279	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-56 1/2	Pr-Al.	DeJo—DeJoy	
	Special	112 1/2	31x5.25	Own. 231 6-3455	25.3	224	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	30E	113	30x5.25	Own. OS 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Oldsmobile	106 1/2	30x4.95	Own. 30E 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Whippet	100 1/2	27x4.40	Own. 93 6-3455	21.6	170	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Overland	93	112 1/2	27x4.40	Own. 93 6-3455	21.6	170	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy
	6-3455	126-133	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
McFarlan.	SV	127	33x6.20	Wia. Y 6-3455	27.3	268	I	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	SL 8	131	33x6.20	Lyo. 4H 8-3455	33.8	299	T	Ch.	Ch.	C.I.	5	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	TV	141 1/2	33x6.75	Own. TV 6-4126	48.6	575	T	Ch.	He.	A.L.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Series A	113	30x5.25	Con. 77C 6-3455	23.4	196	T	Ch.	Ch.	C.I.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-60	110	29x4.75	Con. Spec. 6-3455	19.8	185	L	Ch.	Ch.	C.I.	4	Y	P.F.	Pu.	N	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Light Six	108	30x4.75	Own. 261 6-3455	21.6	170	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Advanced	121-127	33x6.00	Own. 261 6-3455	28.4	279	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Special	112 1/2	31x5.25	Own. 231 6-3455	25.3	224	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	30E	113	30x5.25	Own. OS 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Oldsmobile	106 1/2	30x4.95	Own. 30E 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
Nash.	Advanced	121-127	33x6.00	Own. 261 6-3455	28.4	279	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Special	112 1/2	31x5.25	Own. 231 6-3455	25.3	224	I	He.	Ch.	C.I.	7	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	30E	113	30x5.25	Own. OS 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Oldsmobile	106 1/2	30x4.95	Own. 30E 6-2455	19.8	185	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Whippet	100 1/2	27x4.40	Own. 93 6-3455	21.6	170	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	Overland	93	112 1/2	27x4.40	Own. 93 6-3455	21.6	170	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy
	6-3455	126-133	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
	6-3455	135-143	33x6.75	Own. 6-3455	29.2	385	L	Ch.	Ch.	C.I.	3	Y	P.F.	Pu.	Y	N	Str.	N	Delco.	DeJo.	P.B&B.	Own.	(f-Thr.)	1/4 Own.	4.50	B-F.	E-T	M	Gem.	S-57 1/2	Pr-Al.	DeJo—DeJoy	
McFarlan.	SV	127																															





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Snowy days are selling days for McKay Dealers everywhere. The "long life" of McKay Tire Chains has been SOLD to the American motorist. When he needs tire chains he thinks of McKays first.

*There's profit for YOU in the McKay line!*

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AUTOMOBILE SHOWS  
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Grand Central Palace  
New York City  
Jan. 8th to 15th  
Spaces C-79-80-81  
Coliseum  
Chicago, Illinois  
Jan. 29th to Feb. 5th  
Spaces 120-121



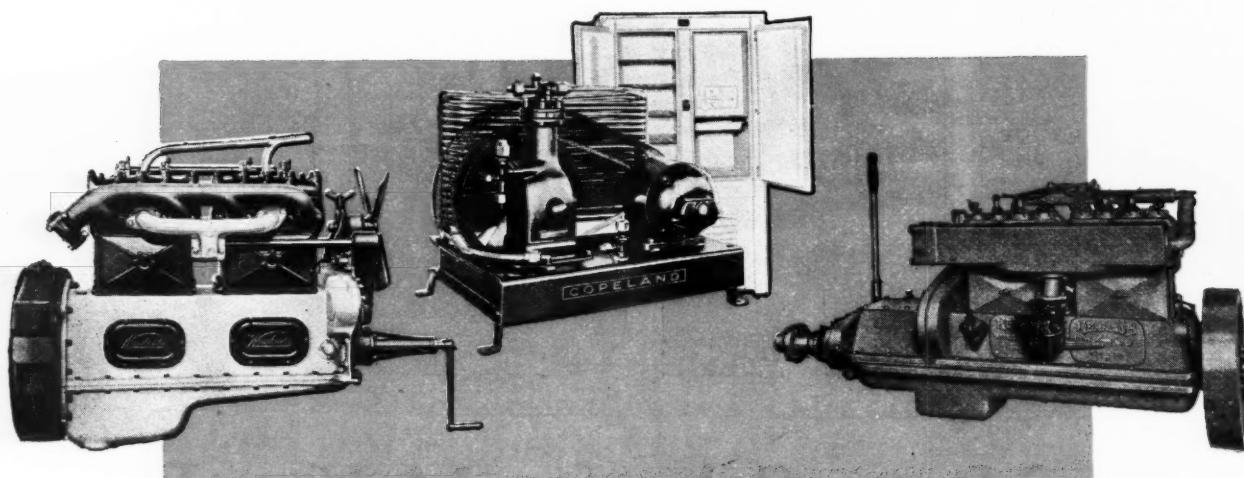
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# McK

McKay Dealers get the bumper profits, too. With their line of McKay Red Bead Bumpers they have just the right bumper for every car—all bumpers that "add good looks and protect good looks."

# Pre-eminent

## Among the Makers of Parts



*Arrow Head's most complete and flexible up-to-date line assures quick service on the 4,000 most-called-for fits and applications, including practically "all motors, all years, all models."*

Consider the responsibility that is placed upon the piston and pin—bearings that without adjustment must travel, metal against metal, almost as many miles as the tires themselves.

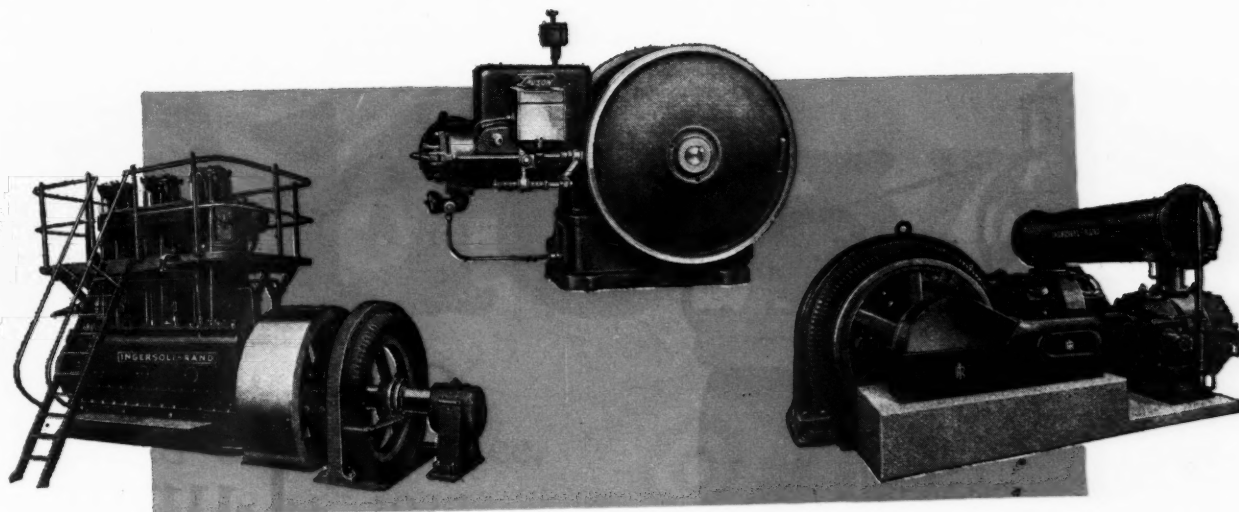
In the motor industry, someone had to take the responsibility for these parts that stand the punishment. Only by the most rigid metallurgical formulae and mechanical specifications based upon a breadth of experience covering the performance of all motors, could any company hope to meet this responsibility.

It is by measuring up to this situation that the Arrow Head Steel Products Company has devel-

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**Pistons & Piston Pins**

## that stand the Punishment



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Arrow Head piston and pin assemblies, adopted as standard equipment, have smoothed out routine, improved motor performance and provided new economies in many well-known motor making plants. Arrow Head short runs for replacements have provided a new assurance of continued service for older model and orphan motors.

*Arrow Head embodies specialized efficiency for the entire internal combustion engine industry in supplying pistons and pins—the heart of the motor assembly.*

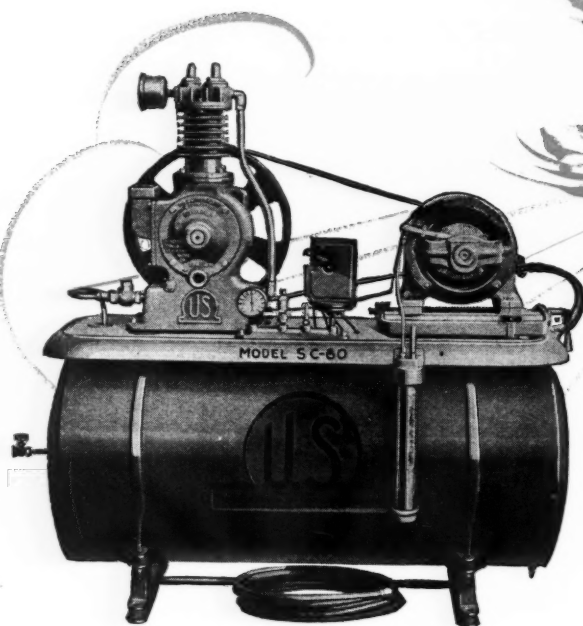
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Minneapolis, Minnesota

# Head

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THE almost universal use of balloon tires, with their consequent increased air requirements, has rendered the air compressor of limited capacity practically obsolete. Present day tire inflation demand and the increasing use of compressed air in large quantities for many garage, filling and service station requirements has made a more powerful type of compressor necessary.

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Compressor  
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AIR COMPRESSORS  
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U.S.

27th Annual National

# Auto Shows

**NEW YORK**  
Grand Central Palace,  
Jan. 8-15, 1927

**CHICAGO**  
Coliseum,  
Jan. 29-Feb. 5, 1927

*The Latest and Best in Cars  
The Newest in Accessories*

with two new features—

A light truck section  
A shop equipment section

The Shop Equipment Sections will be open to the trade only until 3 p.m.—except on the opening day. This will afford factory service managers, wholesale distributors, dealers and service station operators an opportunity to inspect in comfort the latest developments in service machinery and tools. In the late afternoon and evening the exhibits will be open to the public.

## TRADE DAYS

At the shows, the Trade Days, inaugurated two years ago will be in force again. On Monday and Tuesday at both shows the trade will be admitted until 1 p.m.

Tickets for Trade Days and Shop Equipment sessions will be supplied to all who are entitled to them, in advance and on application at the buildings.

*Auspices of National Automobile Chamber of Commerce, Inc., with the cooperation of Motor Accessory Manufacturers Association*

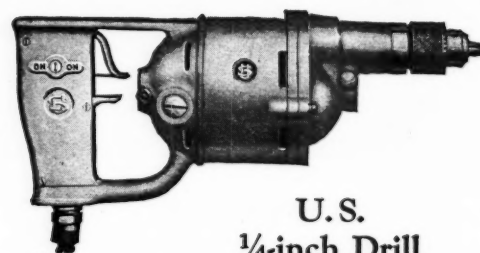
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(Three Ball Bearing)

\$30

Experienced mechanics say—  
**"Send me another U.S."**

**W**HEN old-time mechanics want another drill, they nearly always insist on a U. S. Drill. They *know* drills. They have had personal experience with drills for years—some since the first portable electric drill (a U. S.) was brought out thirty years ago.

U. S. Drills are *right*—designed right for your particular jobs; right in quality for long, hard service; and right in price. They have always been first to embody important improvements—from the powerful fan-cooled universal motor (for A.C. or D.C.) to 3 heavy duty SKF Ball Bearings, 2-pole trigger switch, chrome nickel steel gears running in grease, and many other features, some of them found only in U. S. Drills as yet.

Profit by the experience of old-time mechanics. Insist on U. S. Drills when you buy. Ask your jobber—or write us today.



Ask for Catalog "H"



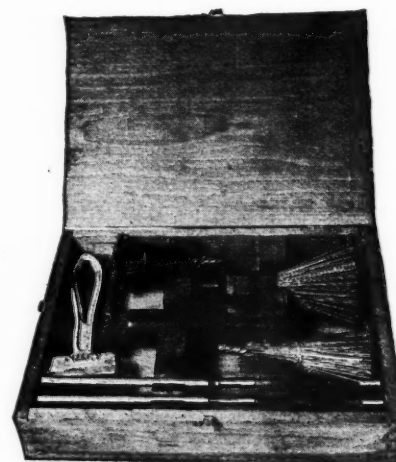
THE UNITED STATES ELECTRICAL TOOL COMPANY

Oldest Builders of Electric Drills and Grinders in the World

Cincinnati, Ohio. U.S.A.



**Portable Electric Drills  
Grinders-Polishers**



**Pilley—U. S.  
Carbon Cleaning Set**

One of the most useful articles about a shop for use with U. S. Drills. Contains a carbon cleaning brush and refill, a valve port brush and refill, two adjustable valve guide cleaners and a quick cleaner brush, all packed in handy oak box. The carbon cleaning brush is the only rotating brush made that works under pressure. Get all the facts from your jobber today, or write us. Price..... **\$10**

Export Sales Representatives  
Westinghouse Electric International Co.  
150 Broadway, New York City

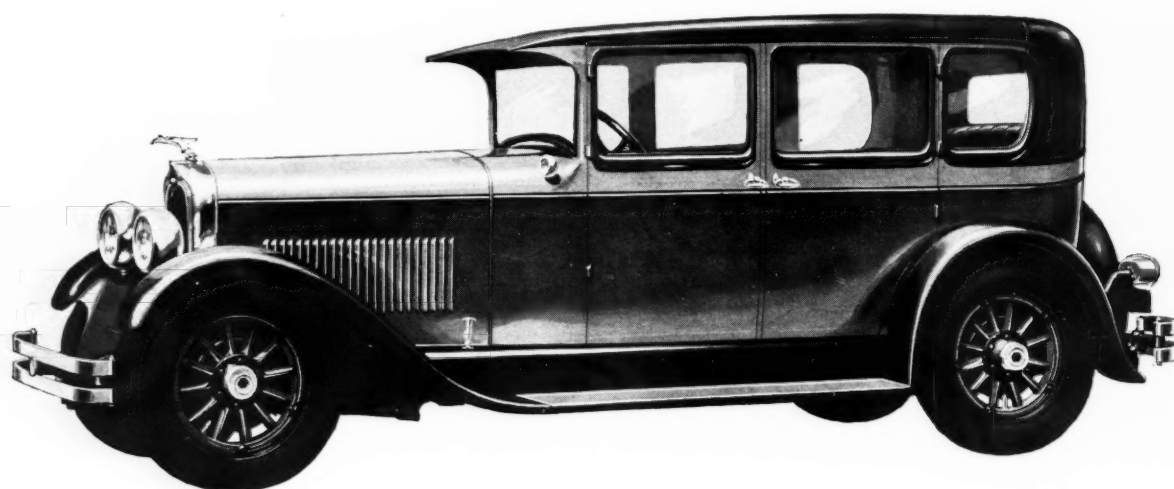


*America's first  
truly fine small  
car ✓*

will be publicly presented  
for the first time at the  
New York Automobile  
Show, January

*8th.*

*America's first truly fine small car  
~with eight cylinders in line ~*



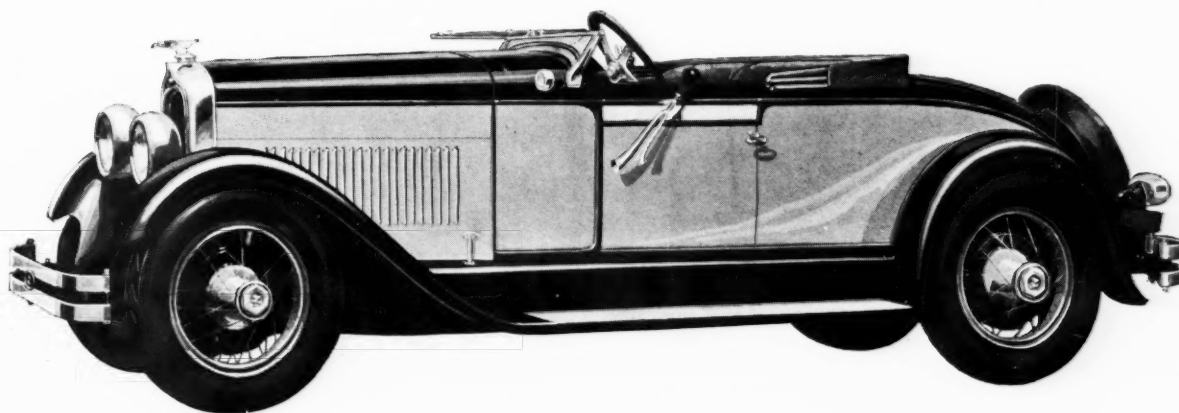
*Little Marmon Four-Door Sedan*

~ Next month Marmon will present to the public an entirely new and advanced type of transportation—a small car with the distinction and individuality which heretofore have been associated only with the largest, most luxurious and most expensive automobiles. It will be known as the Little Marmon.

As a companion to the Marmon 75 and produced in a wide variety of body types, it offers dealers a complete line of fine cars—all under one name and one standard of quality manufacture.

The Little Marmon has eight cylinders—in line, delivering greater power per cubic inch of piston displacement than has ever been known in a passenger car engine.



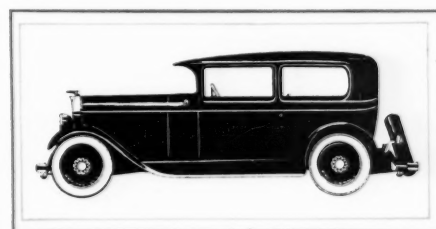
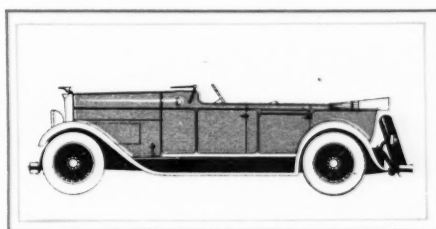
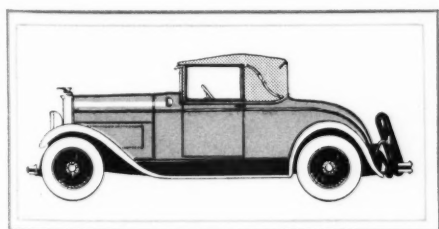


*Little Marmon Two-Passenger Speedster*

It will be produced in a wide range of standard models, all priced under \$2,000.

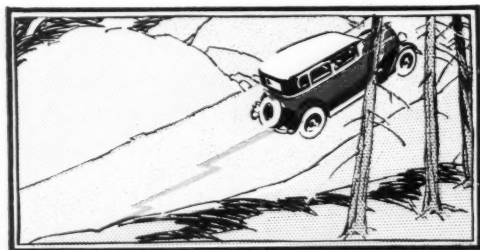
The program also includes the introduction of several most unusual custom-built designs, selling under \$3,000.

The Little Marmon is backed by two years of research and development and by months of the most severe tests on road and track. It is manufactured by Marmon in Marmon factories.



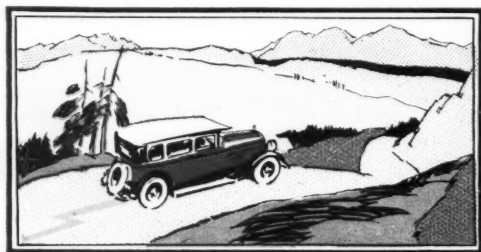
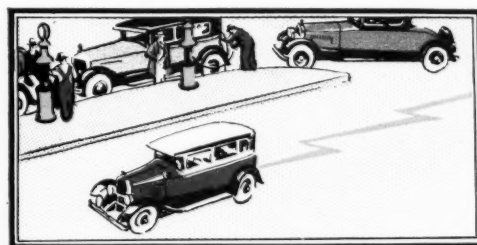
It is not a "European type" of car, but is built for American roads and American distances. Its size and remarkable ease of handling, however, make it an ideal car for congested city streets. It enters the market under the momentum of intense nation-wide interest

# What it will do



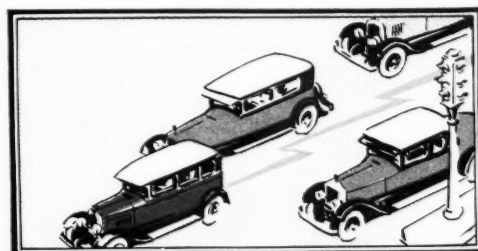
**Speed and Acceleration**—70 honest miles per hour—with ease and safety—(even greater speed in open models). Lightning quick in acceleration. It can be driven at high speed hour after hour without dampening its vitality and with remarkable ease. There is not the slightest suggestion of “shimmy” at any speed.

**Economy**—Numerous tests have shown that it will deliver better than 20 miles per gallon of gasoline, which is truly remarkable in a car of such power and speed. In short, it has the power and range of performance of a big car and the economy of a little one, plus the distinction previously found only in the most expensive cars.



**Touring**—There is not an automobile built today that can follow it through the varying conditions of traffic and roads for any great distance (we’ve tried it with practically every well known make of automobile). You can go with your foot to the floor almost any distance without strain. In riding qualities it actually rivals the Marmon 75.

**Traffic**—Those who have driven the Little Marmon say that its ease of operation has never before been approached in any automobile. Its comparatively short wheelbase and turning radius make it easier to park than any other fine car. The running board is only curb high (you don’t have to step up to get in or step down to get out).



MARMON MOTOR CAR COMPANY  
Indianapolis, Indiana

GENTLEMEN: We would like to have the opportunity of seeing and driving the Little Marmon prior to its public presentation.

Firm Name \_\_\_\_\_

By \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

*The little*  
**MARMON**

Companion to the Marmon 75

# THE YEAR SAYS BUY!



1927 JANUARY 1927

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
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1927 FEBRUARY 1927

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1927 MARCH 1927

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1927 APRIL 1927

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1927 JULY 1927

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1927 AUGUST 1927

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1927 SEPTEMBER 1927

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1927 OCTOBER 1927

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More than a quarter of a million Farrand Speakers sold in twelve months! . . . If you are not already a Farrand Dealer, you should be!

1927 MAY 1927

SUN	MON	TUE	WED	THU	FRI	SAT
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22	23	24	25	26	27	28
29	30	31				

1927 JUNE 1927

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*Farrand  
Speaker*

1927 NOVEMBER 1927

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1927 DECEMBER 1927

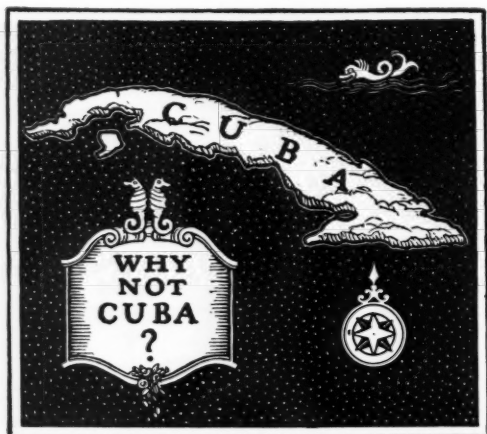
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29



# SAN FRANCISCO to NEW YORK...

WHY NOT

# CUBA?



A SAN FRANCISCO steel broker found that a competitor had stolen a march on him by leaving for Cuba, where an important purchase of steel was about to be made. Shortly before this, he had handled a transaction with New York by Long Distance. So . . . "Why not Cuba?" He got his man in Havana. In a few minutes — while the competitor still had half of his journey to go—he clinched the deal. It amounted to \$300,000!

MORE and more, as facilities grow, the business man who travels by wire passes those who go by any other means. A long distance call knows few limitations of time or distance. It saves the time and energy spent in travel and, in minutes, gets things done that otherwise would take days. Through the Bell System, investing a million dollars a day to develop and extend America's wire communications, the busy man can go anywhere and reach almost anyone by telephone.

Are you sure that your various departments know the full possibilities of the telephone in your business? The road men of many concerns, after convincing trials,

are using the long distance telephone when important information is needed quickly. Whenever an expensive trip can be saved. When a telephone call in advance will insure an important appointment. Where someone can be interviewed who otherwise could not be seen.

Our Commercial Department in your city will be glad to help you investigate the usefulness of Long Distance to the various departments of your business. In the meantime, what important purchase or sale is pending that could be closed by Long Distance—without leaving your office? What distant man or concern would you like to talk with, now? . . . *Number, please?*

## BELL LONG DISTANCE SERVICE



# Another Problem Solved

by

# CORK SEALED

# PISTON RINGS

|| "CORK SEAL IN TIME  
SAVE A RE-GRIND" ||

## Bring Out the Best Qualities in Aluminum Alloy Pistons

It is needless to tell dealers, garage and repairmen, the advantages of aluminum alloy pistons—or the adverse conditions under which many of them are forced to operate.

With CORK-SEALED Piston Rings the entire thrust of the power stroke is not thrown directly on the slotted skirt, which causes a crushing in at the lower end of the piston with looseness at the skirt.

Blow-bys and slap are eliminated, and piston life is greatly prolonged.

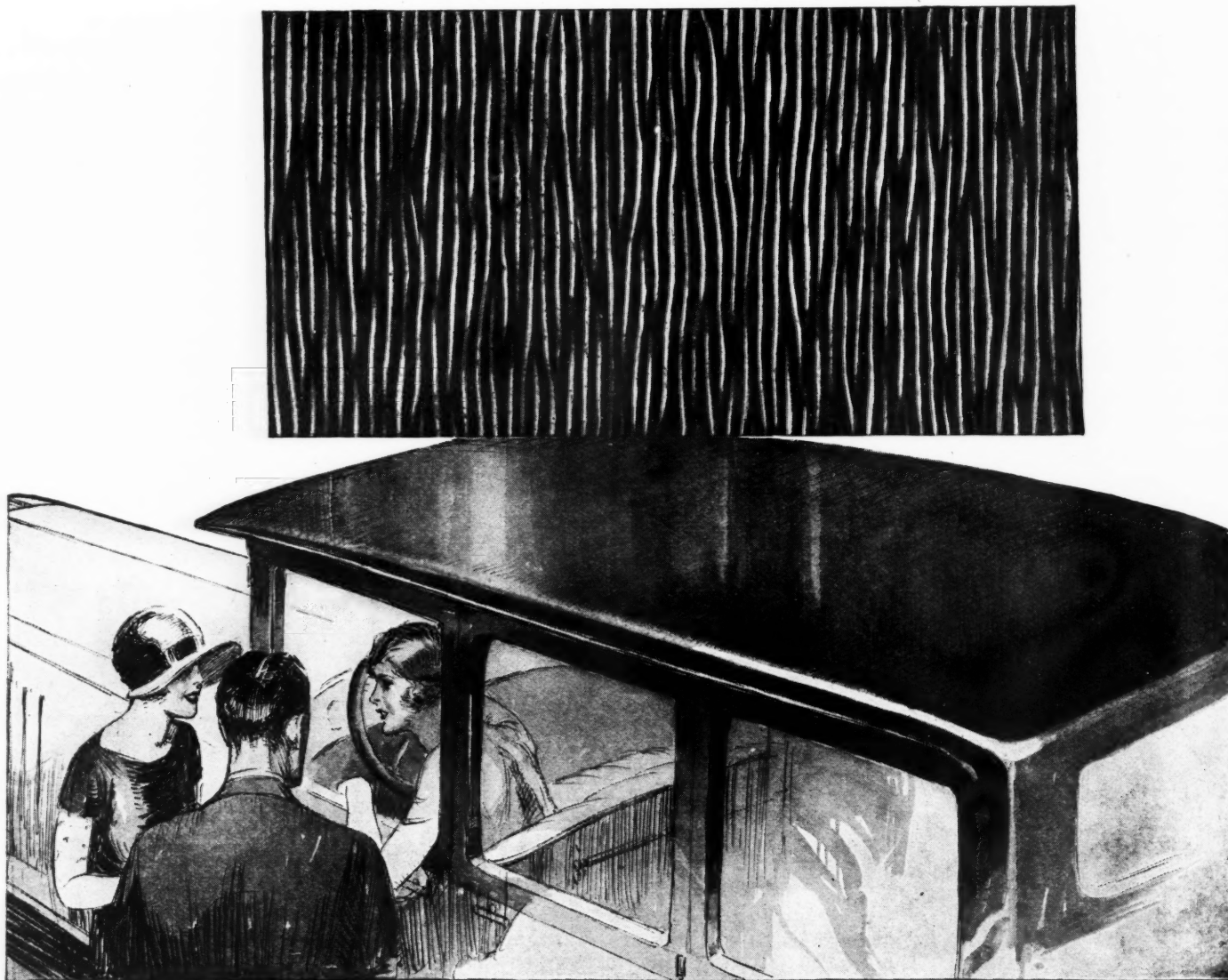
Manufacturers and distributors of Aluminum Alloy Pistons—and service men—are invited to **correspond with us**. We have sales information you should know.

**The Cork-Sealed Piston Ring Corporation**  
2332 Michigan Ave., Chicago

Factory: Denver, Colo.

Canadian Distributor: Purser, Bull & Co., Ltd., Toronto, Canada

# D U R A B L E



THE jet-black lustre of car decks needs no longer be a mere show-room finish. Now, a new development in rubber top materials—du Pont Everbright Pontop—preserves that lustrous finish through many thousand miles of service, in sun and rain.

Instead of turning a dull, sooty black after only a few weeks' exposure, as so many top fabrics do, Everbright Pontop retains its rich new look through long use and exposure. It has durability never before achieved in rubber deck material.

E. I. DU PONT DE NEMOURS & CO., INC., FAIRFIELD, CONN.

What was once avoided in the sales talk now becomes a sales point. Everbright Pontop redeems the closed car deck.

**DU PONT**  
**EVERBRIGHT**  
**PONTOP**

Its superb quality is built in—it goes all the way through—assuring you the highest quality rubber deck material manufactured.





Marked by Inches  
Easily Cut to Length

*The Radiator Hose  
with the tougher rubber lining*

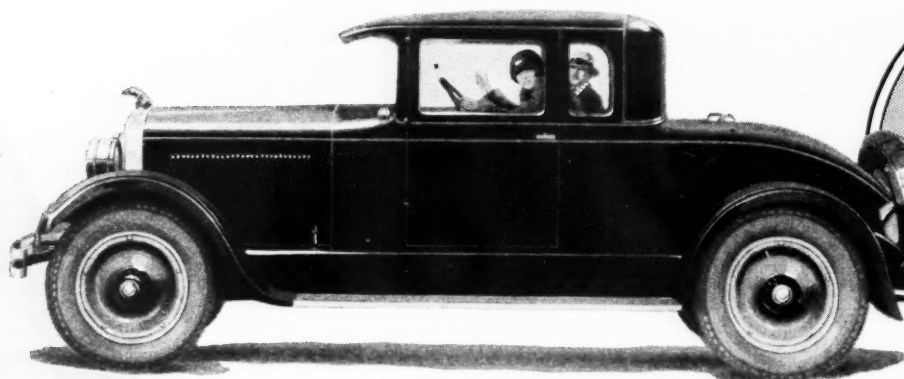


# GATES **VULCO** HOSE

More than 98,000 dealers in the U. S. are now selling Gates Vulco Hose. Quality built this business —and to meet its requirements during the next 12 months our jobber customers have already contracted for more than 5¼ miles of Gates Vulco Hose every day.

"Made By The World's Largest Manufacturers of Fan Belts"

# PEERLESS



*The  
Six-80*

\$1395 to  
\$1595



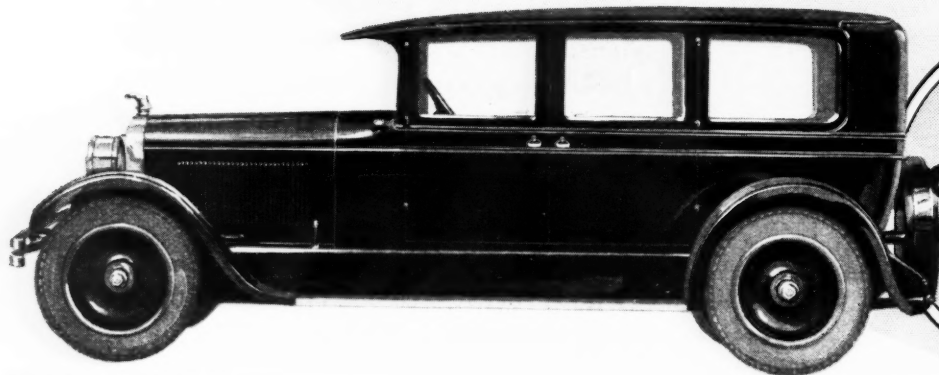
*The  
Six-90*

\$1725 to  
\$1995



*The  
Six-72*

\$1895 to  
\$2995



*The  
Eight-69*

\$2795 to  
\$3795

PEERLESS

HAS

ALWAYS

# FRANCHISE ~ a Real Money Maker *in 1927*

**T**HIS year, Peerless has made one of the most gratifying sales records ever established in its history. Naturally, Peerless distributors and dealers have had their share of this remarkable success.

Sales increases were two to three times over last year. Think of it! And, in addition, a tremendous growth in dealer and distributor organization was effected.

Do you realize what the Peerless franchise offers today? Four different models—four different prices—four different profit ranges to draw from.

No wonder that Peerless has made such a record this year!

And those who know the Peerless plans for 1927 declare—without reservation—that next year Peerless progress will be another big step forward.

If you are seriously interested in a franchise offering such outstanding possibilities for profit, write or wire for details of the Peerless franchise.

*See them  
at the Shows*

When you visit the New York or Chicago Show, by all means see the superb Peerless cars pictured at the left. They'll tell you—better than anything else—why Peerless success has been so marked.

PEERLESS MOTOR CAR CORPORATION • Cleveland, Ohio  
*Manufacturers of the 90° V-type Eight-69, the Powerful Six-72, the Remarkable Six-80 and the Six-90*  
(All prices f. o. b. factory)

BEEN • A • GOOD • CAR



# Millions paid for spring service last year—more millions this year and in years to come

*Eaton's wonderful distributing organization will help you get a generous share of these profits*

**S**PRING replacement and repair has grown to really tremendous proportions as a national business, in recent years. The steady increase in the number of cars, trucks and busses makes it the kind of steady-profit business that no wide-awake garage or service men can ignore.

And now Eaton offers you a finer opportunity than ever for taking a generous share of these great spring service profits. Hundreds of Eaton jobbers are now placed to serve the entire country, each of them backed by huge warehouse stocks of Eaton Springs located nearby.

It means that you can call on a jobber near you for the correct Eaton Spring for any car, truck or bus that rolls in—and get it without delay.

*Call the nearby Eaton jobber today and learn how the greatest replacement spring-producing and distributing organization in the world can help you make new profits. Write us for his address if you don't know him.*



*[Eaton Springs are made expressly to fit any car, truck or bus, by the same organization which produces the famous Eaton Axles and Eaton Bumpers.]*

**THE EATON BUMPER & SPRING SERVICE CO.**  
Cleveland, Ohio

Factory Branches and complete warehouse stocks at—Boston, New York, Philadelphia, Cleveland, Chicago, Minneapolis, Denver, Kansas City, Dallas, Atlanta.

# EATON SPRINGS

*Formerly AMERICAN and PERFECTION Springs*



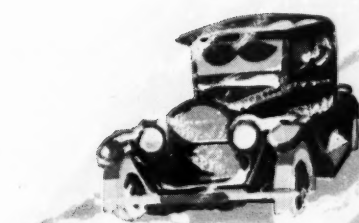


The Bosch Tandem Attachment gives full vision to both front seat occupants—\$1.75 extra

TRADE MARK

**YOU NEED THESE BOSCH  
ELECTRIC WINDSHIELD  
WIPER ADVANTAGES**

- 1—Electrically Operated. Leaves both hands free.
- 2—Unusual Power, ample for cleaning heavy snow.
- 3—Steady, Positive, Unvarying Speed.
- 4—Quiet, practically noiseless.
- 5—Compact, Unobstructed Vision.
- 6—Non-smearing, Spring pressure insures clean wipe.
- 7—Adjustable, up and down—in and out—adjusts to any windshield.
- 8—Rugged, Long in life, Free from trouble.
- 9—Tandem Attachment. Full vision—All can see ALL.
- 10—Bosch Made, Embodies Bosch Precision, backed by Bosch Service everywhere.
- 11—Economical, Negligible current consumption.
- 12—Independent Unit, Does not effect carburetion—Unaffected by engine speed.



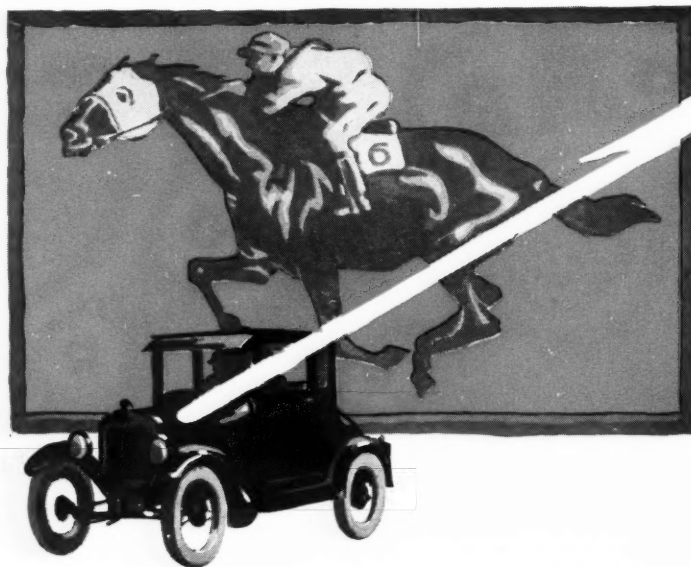
The Bosch Electric Windshield Wiper is powerful, constant, dependable. It will keep the windshield clear of the heavy snow, sleet, slush or rain. Sell the Bosch Electric Windshield Wiper with confidence. Its satisfaction will help you attract more and more trade. The Bosch Windshield Wiper operates off the car battery, using less power than a headlight bulb. Unaffected by the motor it is unvarying in speed, non-stalling and with power enough for the Tandem Attachment. Order today.

Price \$9.50 complete - Tandem attachment \$1.75 extra

**AMERICAN BOSCH MAGNETO CORPORATION**  
Main Office and Works: Springfield, Mass.  
BRANCHES: New York Chicago Detroit San Francisco

# BOSCH Windshield Wiper

# response



"Quick as a flash" the Bosch Type 600 Ignition for Fords gives the Ford owner driving advantages that are selling advantages. It gives the motor that tuned up response - - quick to get away, a steady pull on hills with less need to use low gear - - and it saves fuel. Bosch Type 600 Ignition for Fords is a dependable profit maker, always in demand, always being advertised, always giving praiseworthy service. Easily installed. Order today from your wholesaler or nearest Bosch Branch.

Price \$12.75

AMERICAN BOSCH MAGNETO CORP.  
Main Office and Works: Springfield, Massachusetts  
Branches: New York Chicago Detroit San Francisco



**TYPE 600**  
**BOSCH**  
**Ignition**  
**for**  
**FORDS**



Every day more motorists learn that they can purchase cars with the All-Steel Body at a cost no greater than is asked for cars which *do not* afford this protection. This rapidly spreading knowledge is making the job of some salesman easier—the job of others increasingly difficult. In which group are you?

EDWARD G.

**BUDD**

MFG. CO.

*Philadelphia and Detroit**Originators of the All-Steel Full-Vision Automobile Body*



## *A remarkable example of balanced value*

THE full pleasure of car ownership is the fruit of balanced value. This is the greatest sales asset for Elcar dealers.

Distinctiveness and grace of line; every car comfort; a sturdy, well-designed and constructed chassis coupled with a smooth flow of power, adequate for the most exacting driver and equal to every demand for acceleration, flexibility and economy: that is the sum of the achievement that has made the Elcar increasingly popular for nearly eighteen years.

The power, the flexibility, the remarkable performance and the satisfying economy in operation are the contribution of Lycoming Motors, with which every model of Elcar is powered — Fours, Sixes and Eights-in-Line.

LYCOMING MANUFACTURING COMPANY

Makers of Fine Fours, Sixes and Eights-in-Line

WILLIAMSPORT, PENNSYLVANIA

Export Department — 44 Whitehall Street, New York City  
MEMBER OF MOTOR TRUCK INDUSTRIES, INC., OF AMERICA



# LYCOMING

## *Motors*

YEARS AHEAD IN AUTOMOBILE MOTOR EFFICIENCY



## Makes the most of his space

There's only about four hundred square feet in this corner of the Richmond Motor Company's new place next door to the Federal Building on the Dixie Highway, in Richmond, Kentucky. But look how Mr. Frank C. Gentry of Richmond Motor Company has made this valuable space work for him.

The three shelves of the glass fronted Lyon Steel counters provide over a hundred feet of excellent display space, kept clean by dust-proof sliding doors at the rear. And there's more display space on top with plenty of room to sell goods. In the thirty-six-unit Lyon Auto Parts Control System there is a proper place for every one of several thousand items. To top it all off, an efficient office occupies nearly the whole area.

There is a way that a Lyon Auto Parts Control System can do comparable things for your business. Better display—more sales. More convenient arrangement—smaller selling expense. Easier stock keeping—less store overhead.

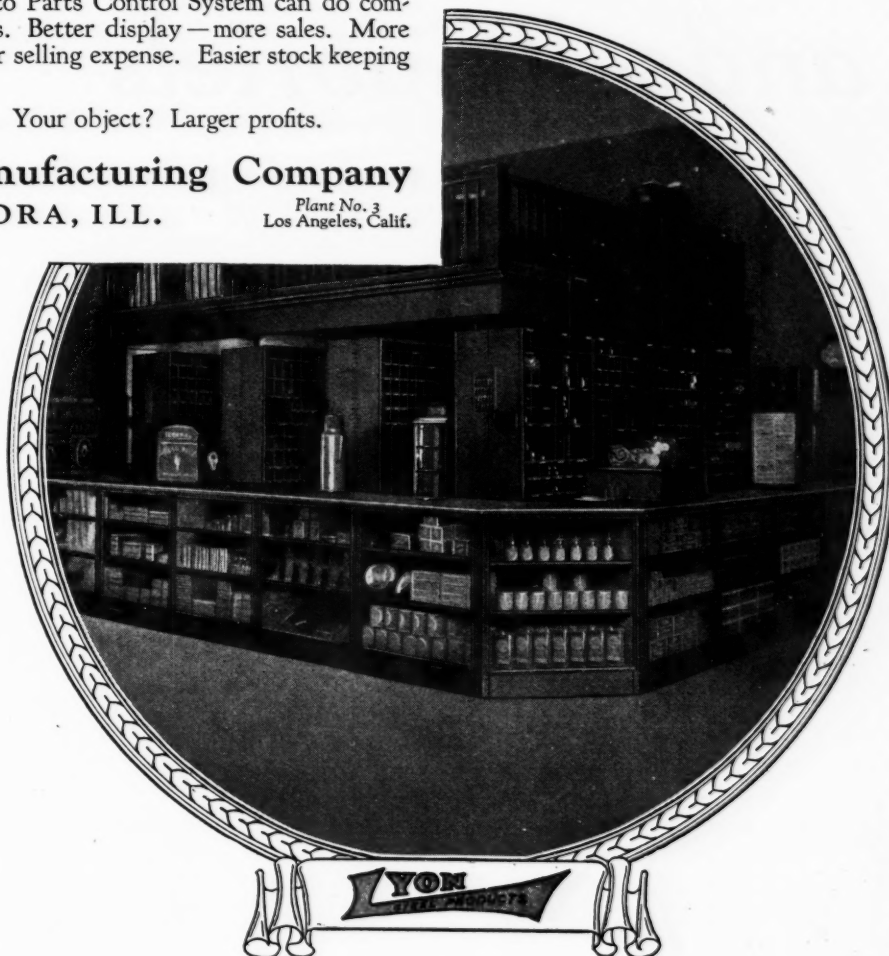
Write for complete information. Your object? Larger profits.

### Lyon Metallic Manufacturing Company

Plant No. 2  
Newark, N. J.

AURORA, ILL.

Plant No. 3  
Los Angeles, Calif.



*Leading Automotive Distributors Sell*

## LYON AUTO PARTS CONTROL

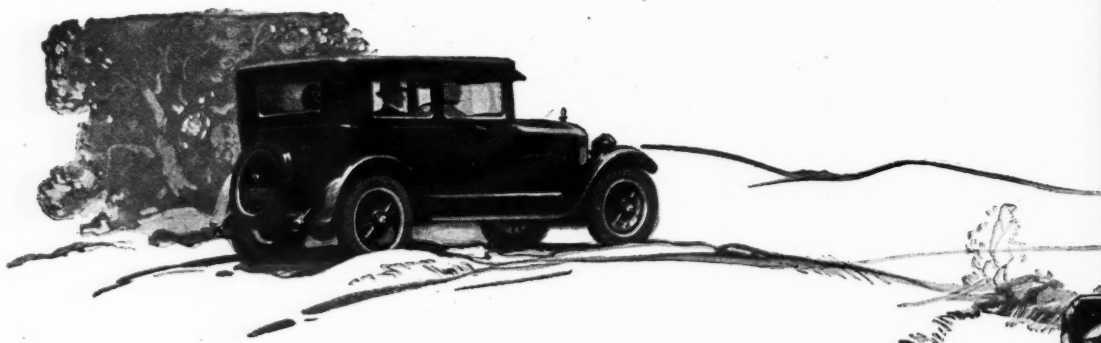
STORAGE SYSTEMS, COUNTERS, STEEL BENCHES, BENCH DRAWERS, TOOL BOXES, DISPLAY RACKS, CABINETS, LOCKERS AND MISCELLANEOUS STEEL EQUIPMENT



**A sure way to increase your profits is to follow the lead of the great majority of car dealers—*and sell Gabriels***

*Write for details about the liberal  
Gabriel Sales Proposition*

**The Gabriel Snubber Manufacturing Co.**  
1415 East 40th Street, Cleveland, Ohio  
Toronto, Canada



**GABRIEL**  
**SNUBBERS**

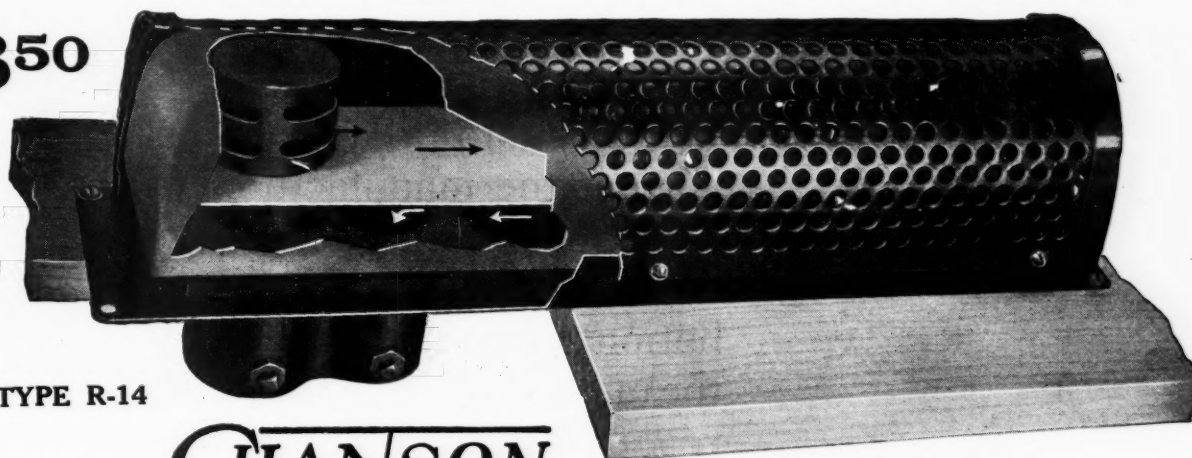
**Gabriel—and Only Gabriel—Is a Snubber**



# Christmas Sales Leaders!

This year, more than ever, people are buying gifts for the car—gifts that give COMFORT. That's why the new Universal Chanson Heaters make a big appeal. They really make winter driving comfortable. They're easiest to sell right now because they are ideal Christmas gifts for any car.

**\$8.50**



TYPE R-14

## CHANSON

### The only 100% UNIVERSAL Heaters!

Already, these wonderful new Universal Chanson Heaters are sales leaders because they are Superior Heaters—any way you look at it. HERE'S WHY—

Chanson R-14 and R-25 Heaters are 100% Universal because they can be used as Toe-Board, Heel-Board or Rail Heaters, in Front or Rear.

Second, because they are the only heaters that have a valve which fits all exhaust pipes.

That's only half of it. Now note these exclusive, patented features:

Double-chamber pressed steel heating element, insures instant heat.

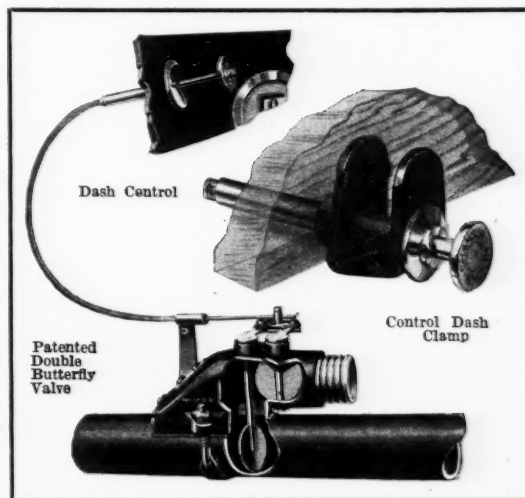
Cast-iron muffler intake (patented) which eliminates all exhaust noises. No odors, no gases.

Both intake and outlet are at one end—only necessary to cut one hole to install.

**ORDER NOW—FROM ANY JOBBER!**

#### Type R-14

Fits all cars. Shipped complete with Valve, Dash Control, Control Dash Clamp, Flexible Intake and Tail Pipe. Length over all 14 inches. List \$8.50.

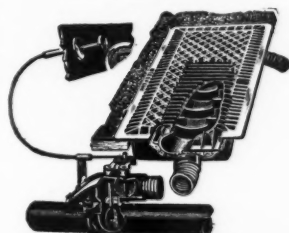


#### Type R-25

Has specially designed heating element with Chanson Baffle Plate construction. For large sedans. Length over all 25 in. Shipped complete. List \$15.00.



### A Complete Line of Efficient Heaters



Models 1-F and 2-F

10 DIFFERENT SIZES and MODELS  
Heel-Board, Toe-Board, Rail, and Register  
Types, Ranging in Price from \$13.50 to  
\$22.50

MEET PRACTICALLY EVERY REQUIREMENT

**ILLINOIS IRON & BOLT CO.**

(Est. 1864)

Chanson Devices Division

Dept. 1218

Carpentersville, Ill.

#### Mail This Coupon

Illinois Iron & Bolt Co. (Chanson Devices Div.)  
Dept. 1218, Carpentersville, Ill.

Please rush prices and discounts on your complete line of Chanson Heaters.

Name.....

Address.....

City.....State.....

Jobber's Name.....

## *Is Something for Nothing Always "Worth Just That"?*

**I**T occasionally happens that the manufacturer of a product that is good, elects to introduce it by the distribution of free samples—or by the method of a free trial with returning privileges included.

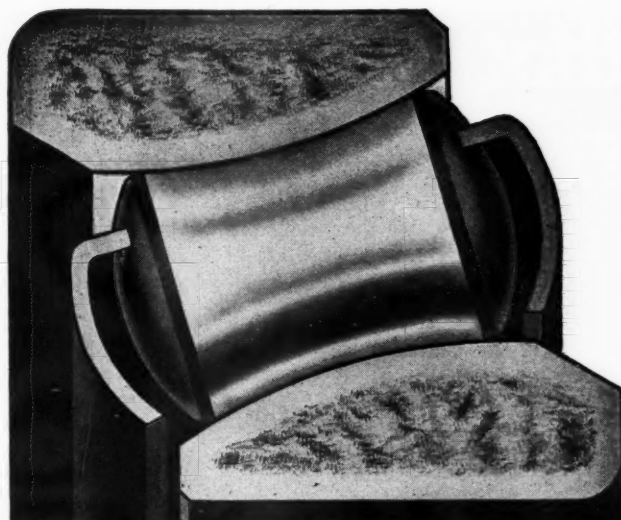
This does not mean that the manufacturer is giving his product away, nor should the free feature belittle it in the minds of the trade.

The cost of free samples and free trials is legitimately charged to marketing expense — and should reflect the manufacturer's confidence in his product to satisfy, and make good.

**MOTOR AGE**

5 South Wabash Avenue  
Chicago, Ill.



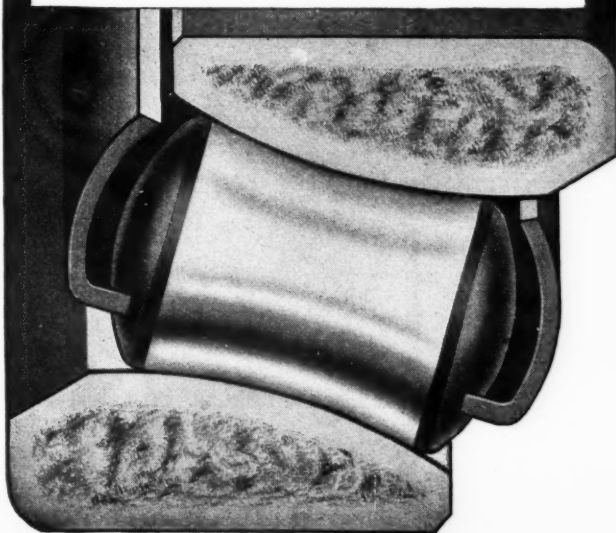


## SHAFER

*"Self-Aligning"*  
ROLLER BEARING  
PATENTED

*Automatically*  
Misalignment, frequently occurring when separate units are assembled, is automatically compensated for in the patented Shafer Self-Aligning Roller Bearing.

SHAHER BEARING CORPORATION  
6501 West Grand Avenue  
CHICAGO, ILL.



*You'll be surprised  
what  
Key  
Graphite  
Paste  
can do*

A LITTLE can of magic! That's what you'll say about this sample can of Key Graphite Paste. It seals gaskets tight, and prevents corrosion. You'll never be without it, after you've once tried it. When it comes to speeding up the contrary jobs—it's right there! With no breakdown after you think the job's O.K.

### Many Distinctive Uses

- Seals all gaskets
- Seals all screw threads
- Prevents rust and corrosion
- Prevents all body and chassis friction
- Prevents oil and gas leaks

Our descriptive leaflet will tell you just where and how to use it.

"Nothing Better" he says

R. B. Howard Billings, Montana says: "In all my 20 years experience of repairing and servicing automotive machinery, I find your Paste the most effective material I have ever used on cylinder head gasket connections."

**KEY BOILER  
EQUIPMENT COMPANY**  
EAST ST. LOUIS, ILL.

*Send for sample to-day*

Key Boiler Equipment Co.  
27th and McCasland Ave.  
East St. Louis, Ill.

I am enclosing ten cents in stamps. Please send me sample can of Key Graphite Paste and free descriptive leaflet on where and how to use it.

Name .....

Firm .....

Address .....

# Compressors that Pay a Profit

## Model B

*At right.* A popular single-stage outfit, complete less power. Suitable for use with gas engine or line shaft. Many sizes.

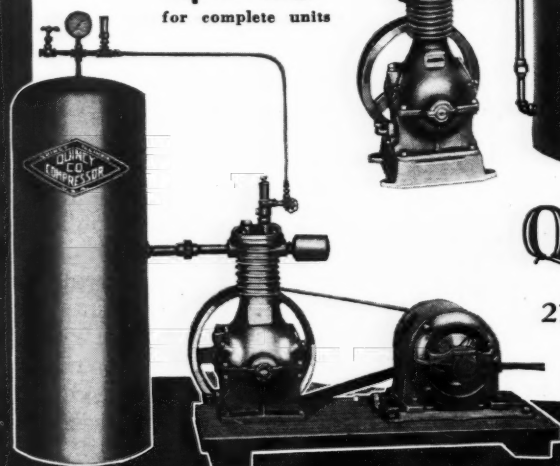
## Model H

*Below.* A complete motor driven unit, available in several sizes. Especially adapted to paint spraying.

Prices as low as

**\$140**

for complete units



**Y**OUR auto laundry, painting department, even your "free air" outlets are all intended to earn a profit, now or later. Make sure, therefore, that they are powered by Quincy Compressors.

Quincy engineer-built units pay dividends by supplying uniform, dry, clean air when and where you need it; by delivering economical, trouble-free service on a lifetime basis. Because they help you turn out better and quicker jobs, they build your reputation for the future.

The Quincy Catalog, containing specifications of all models, will prove helpful to you when you plan the installation or replacement of any compressor equipment. Write for a copy today.

## QUINCY COMPRESSOR CO.

219 Maine Street

Quincy, Ill.

Formerly Wall Pump & Compressor Co.

K585

# $\frac{1}{3}$ of a billion dollars

—is estimated to be the retail volume of accessory business that will be done in 1926 by automotive merchants.

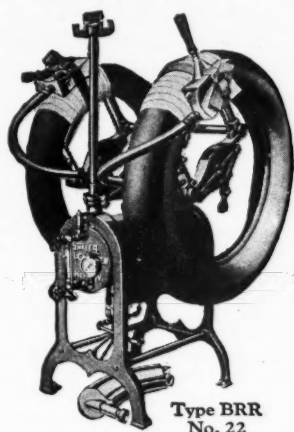
Its distribution will be measured largely by dealers' intelligent buying.

Both the editorial and advertising pages of Motor Age will help you choose stock that sells. It will pay you to take advantage of this service.

**MOTOR AGE**

5 S. WABASH AVE.

CHICAGO, ILL.



Type BRR  
No. 22

### Balloon Tire Vulcanizer

Most complete and efficient  
—yet lowest priced

Now — Add Tire Service

# SHALER

## BALLOON TIRE VULCANIZER

### A Complete Tire Repair Plant—In One Machine

List Price, as shown, with Gas Burner and 2 Balloon Mandrels,  
only .....

**\$135**

With a very small investment in the Shaler Balloon Tire Vulcanizer, every car dealer, service station and garage, can give complete tire repair service. It handles a full line of Fabrics, Cords and Balloons from 3" to 7.30—yet costs less than the old style cavity mold.

There is nothing else like it! Leading car manufacturers use it in their branches and recommend it to their dealers. Ask your jobber's salesman, and write for detailed information and catalog of the complete line of Shaler Tire Repair Equipment.

**C. A. SHALER COMPANY, 223 Fourth Street, WAUPUN, WIS., U. S. A.**

*World's Headquarters for Tire Repair Equipment*

# DIXON'S 677 FOR TRANSMISSIONS AND DIFFERENTIALS

Protects gears by providing a durable graphite film that reduces friction and wear.

Dixon's 677 clings to gear teeth and eases gear shifting as it is not affected by heat or cold.

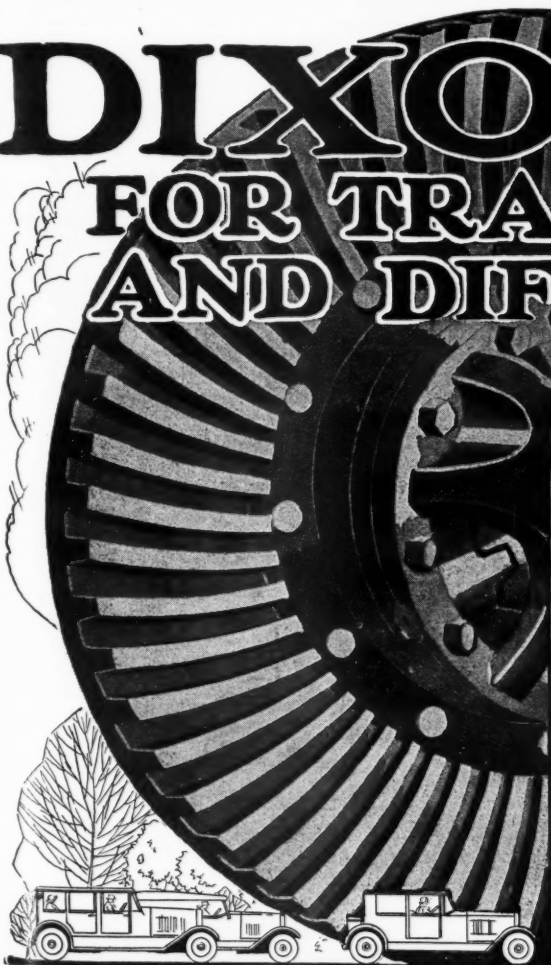
Recommend Dixon's 677 and assure your customers of freedom from lubrication worries.

*Write for our dealer  
proposition No. 82-G.*

**Joseph Dixon Crucible Company**

Jersey City, N. J.

Established 1827





## The COMPLETE Line of Car Washing Units

Look ahead before you buy any car washing unit. If the one you choose does a good job for you it will increase your business and take care of that increase three, five, ten years from now. Buy for the future.

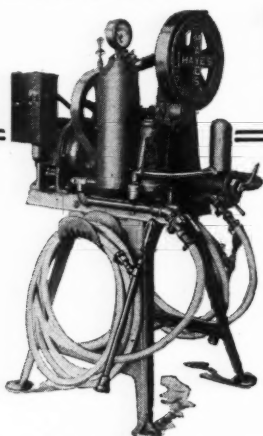
### "Speed-Spra"

is made in 1 Gun 2 Man, 2 Gun 4 Man, 3 Gun 6 Man and 4 Gun 8 Man models. Each size will double the output of any wash rack, cut labor in half, reduce water bills, save washing solution, sponges and brushes—it will build up business and take care of the increase; build up profits and bank the earnings.

Tell us what you are doing now and our engineers will gladly suggest the right size "Speed-Spra", send bulletins and costs without obligation.

Hayes Pump &  
Planter Co.  
819 Sixth St.,  
Dept. 19,  
Galva, Ill.

2 Gun  
4 Man  
"Speed-  
Spra"



Does the  
work of  
EIGHT  
MEN

## Announcing Delta-Levolier Dimming Switch

**M**AKES DIMMING a joy. Mounts on spoke of steering wheel near rim. No need to move either hand from wheel. Change brights to dims with a flip of the thumb. Dims headlights and turns on roadlight—or any combination you want—in the same flip. Fascinating to operate; put one in the hands of a motorist and you've made a sale.



\$2.75  
List  
Canada \$3.70

Drivers who use it consider it the handiest accessory they have on their cars. Fool proof. Reliable. Won't rattle. Fully guaranteed. An exclusive Delta product. Write for full particulars.

DELTA ELECTRIC  
COMPANY  
903 Delta Bldg., Marion, Ind.

Delta-  
Levolier

## CANTON

Portable Crane and Hoist  
Is Now Equipped with Safety Friction  
Load Brake



The purpose of the Canton Portable Crane and Hoist, equipped as it now is with the new Safety Friction Load Brake, is to make even more money for service and repair shop men, than ever before. The Service Friction Load Brake holds the load at any point, and makes it impossible for the load to get away from the operator. On all new models and for all models already in use. Write for a copy of the illustrated booklet M. A., and additional literature describing the outfit. It will show you the way to better profits.

The Canton Foundry & Machine Co.  
Canton, Ohio  
New York Office—303 East 15th Street

## There Simply Isn't Any Better Flux Made Than Rubyfluid!



A complete substitute for dangerous acids, Zinc Chloride, Salammoniacs and other mixtures commonly used as a flux. Ruby Fluid is quick acting, anti-rusting and is always ready for instant use. Ruby users include the foremost industries of the country. Send for generous Free Sample

**Rubyfluid**

COMBINATION  
SOLDERING AND TINNING FLUX

THE RUBY CHEMICAL CO.  
68-70 McDowell Street

Columbus, Ohio

## In the next issue of MOTOR AGE

there may be a new  
idea that will mean  
many dollars of  
profit to you . . .

*Don't miss it!*

# 1927 Leaders

## SNELL Super Heater

Hottest of all automobile heaters. Heats quickly, odorless, ventilates. One model for all cars.

## DUPLEX—Second Spare Tire Carrier

The aristocrat of the road. Beautifies the car, holds the second spare securely and locks it on.

## RIMPLEX—TRIPLEX

Second Spare Tire Carriers for the lighter car. Fits any size demountable rim.

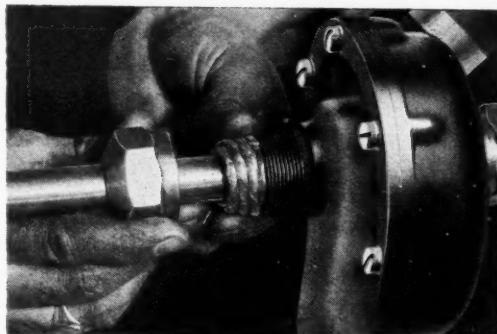
### DISPLAYED AT NATIONAL AUTO SHOWS

New York, Grand Central Palace—Booth D 136 F  
Chicago, Coliseum—Booth 209-211

Write for descriptive literature

**TRIPP-SECORD & CO.**  
DETROIT — MICHIGAN

# "John Crane"



## "The Pump Packing the Motor Builders Use"

Standard equipment on over 40% of all cars. Replacement size now available. Apply like any packing. Saves non-freezing mixtures. Keeps pumps tight. Saves shafts.

## Only One Style for All Cars

Each spool contains 40 ft. of  $\frac{3}{4}$  inch size. Will pack 20 average size pump packing boxes. Makes a packing job worth more money.

Order from your jobber or direct

Compression with the nut makes a one piece metallic packer.

## Crane Packing Company

Chicago  
1805 Cuyler Avenue

109 Broad Street  
New York

Gentlemen:

Send me C. O. D. \_\_\_\_\_ Garage  
size spools of Style 112—\$2.50 net.

Name \_\_\_\_\_

Address \_\_\_\_\_

## Skillful Driving Can't Take the Place of



### For Trucks

REICHERT Emergency Tire Chains go on after cars or trucks are stuck. They enable them to pull out under their own power. Simple and easy to use—and popular. Always in sets of 4 for passenger cars.

STANDARD TIRE SIZES			
Size 1½—For 3 and 3¼ inch tires	Set	.....	\$3.90
Size 2 —For 4 and 4½ inch tires	Set	.....	4.50
Size 3 —For 5 and 5½ inch tires	Set	.....	5.60
(Note Size 3 will also fit 4.95, 5.25, 5.75 Balloon Tires)			
BALLOON TIRE SIZES			
Special 1½A—For 4.40 tires	Set	.....	\$4.20
Size 3 —For 4.95, 5.25 and 5.75 tires	Set	.....	5.60
Size 4 —For 6.20, 6.60 and 6.75 tires	Set	.....	6.10
Size 5 —For 7.30 tires	Set	.....	6.70

One Set Consists of 12 Units—6 Units in a Sack for Trucks.

IMPORTANT! State Size When Ordering.

If your jobber can't supply you—order direct.

**IMPERIAL BIT & SNAP CO.**  
Racine — Wisconsin

## Get This Valuable Data on the Auto Laundry Business

Whether or not you are considering the auto laundry in connection with your business, it will be worth your while to get the new KLEAN-RITE manual. It is brim full of interesting and valuable information and answers every question pertaining to the car cleaning business. It is not a KLEAN-RITE equipment catalog but an authentic, reliable presentation of the auto laundry and its application to super-service stations as well as to any branch of the automotive industry. It will only cost you a 2c stamp to get it. Copy mailed prepaid upon your request.

## THE KLEAN-RITE AUTO LAUNDRY COMPANY

332 S. Michigan Ave., CHICAGO, U. S. A.




KLEAN-RITE, 332 S. Mich. Ave., Chicago.

Send us your new Car Cleaning Manual for our files.

Name \_\_\_\_\_

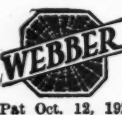
Address \_\_\_\_\_

**THE "BAT" Super-Charger**



A practical system of super-charging for passenger cars, trucks, tractors, marine engines, aviation engines, stationary engines, etc. Simple, easy installation. Practical. Prices range as low as \$7.50.


**P. H. Webber Company**  
 Racine Industrial Plant, Building No. 12, Racine, Wisconsin  
 Manufactured and sold under license of F. J. F. Batemburg, Racine, Wis.



Pat Oct. 12, 1926.  
 Write for details.

**QUALITY—PROFIT—TURNOVER**

**American Hammered Piston Rings**



Baltimore, Maryland  
 American Hammered Piston Ring Company

**A COMPLETE STOCK of AUTO PARTS and ACCESSORIES**

On 5-Day Money-Back Guarantee  
 Also Repossessed Used Cars

WRITE FOR LOW PRICES  
**UNITED AUTO WRECKERS**

2429 S. STATE ST. Established 1916 CHICAGO

**Motor Safety-Signal Audible—For All Cars Junior Model \$1.50 Senior \$2.50**



**Faith Marble Onyx Locking Cap For All Cars**

Junior Models .....\$3.50  
 Senior Models ..... 4.50

Ask Your Jobber  
**FAITH MFG. CO., INC.**  
 2533-39 N. Ashland Ave., Chicago, Ill.

**Mallory Ignition Coil**



Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.

**The Mallory Electric Corporation**  
 Toledo, Ohio


**The profitable line that moves fast FULTON**

Accelerator for Fords—Pedal Pads for Fords and all cars—Accelerator Pedal for all cars—Aermore Exhaust Horn—Hudson's Crankcase Repair Arm for Fords—Copperhead Socket Wrench, etc.

**The Fulton Company, 732—75th Ave., Milwaukee**

**The Gill Combination**

FREE! Twenty minutes with this little booklet will show you the knack of selling piston rings, profitably. Sent free.



**THE GILL MFG. CO.,**  
 8300 So. Chicago Ave., Chicago, Ill.

**Stops Pump Shaft Leaks and Saves the Winter Solution**

Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.

1 lb. can.....\$1.75 per pound  
 5 lb. can.....\$1.60 per pound

**THE CONNEAUT PACKING CO.**  
 Conneaut, Ohio



Prevent This!

**WESCO TIRE CHAINS**

**"They Stand the Gaff"**

**GENERAL MOTORS BUILDING**

Broadway to 8th Ave. - NEW YORK - 57th to 58th Street

Renting & Managing Agent **CUSHMAN & WAKEFIELD, INC.** 50 East 42d Street New York City

**Packard Cable**

**The Packard Electric Co.**  
 Warren, Ohio



**EASY VALVE ACTION ROSE THE LEADER FOR TEN YEARS TIRE PUMP**

**Kawneer**

SOLID COPPER  
**STORE FRONTS**

Write for Special Book—Garage Front  
**THE KAWNEER CO., 3724 Front St., Niles, Mich.**

**NEXT WEEK**

—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week

**MOTOR AGE**  
 5 So. Wabash Ave. Chicago, Ill.

**WEL-EVER**

**"OIL CONTROL" PISTON RINGS**

The Motor Necessity That Has Made Good Backed by Seven Years' Satisfactory Service

**THE WEL-EVER PISTON RING CO., TOLEDO, OHIO**  
 Sold most everywhere. If your dealer cannot supply you write us.

**PROTECTOMOTOR 99 9/10**

REG. U.S. PAT. OFF.  
 Perfect Positive Protection

Filters all dust, sand and grit out of air supply to carburetor and motor. Write us for facts.

**STAYNEW FILTER CORPORATION**  
 Rochester, N. Y.

**EFFICIENT**





It's Easier and Quicker  
to Test Tubes

with New **DOVER BALLOON  
TIRE TESTER TANK**

Pat. Aug.  
20, 1913

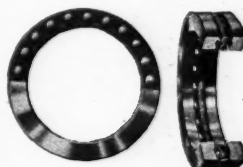
Tank is made of sheet steel and galvanized after  
formation.

Adjustable rod supports the tube.

A great time saver in every shop.

**Dover Stamping & Mfg. Co.**  
385 Putman Ave. Cambridge, Mass.

## Our Specialty



Years of experience in  
making automobile Bearings  
have qualified us to produce  
a Bearing of superior de-  
pendability.

**Bearings Company of America**

Lancaster, Pa.

Detroit, Mich.  
Office  
1012 Ford Bldg.



### The SO-LO JACK

\$6.00 Retail

West of Mississippi \$6.50

4 1/2" LOW-HIGH 16 1/2"

The REAL Balloon Tire Jack

All Steel Construction

POWERFUL—STURDY—EASY TO

OPERATE

A Sure Seller with your Trade

**SO-LO JACK CO., Inc.**

108 Massachusetts Ave., Boston, Mass.

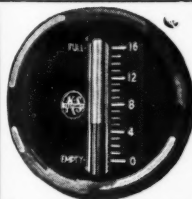
### WIRE OR WRITE US FOR NEW OR USED TIRES — PARTS — ACCESSORIES

IF IT'S FOR AN AUTOMOBILE WE HAVE IT!

SEE OUR NEXT DISPLAY IN MOTOR AGE, JANUARY 6

**STATE AUTO PARTS CORPORATION**

2011-13-15 S. State St., Chicago, Ill.



### The K-S GASOLINE Telegage

And now, a Telegage for the Ford. See our  
half page advertisement in the Saturday  
Evening Post, January 29th. Write for de-  
scription and proposition to the trade.

**KING-SEELEY CORPORATION**

298 Second Street Ann Arbor, Michigan  
Chicago Branch, 2450 Michigan Boulevard

### The Borgan Cotter Pin Extractor

*Works Like Magic*

It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it  
until released. You don't have to pull or twist. Just squeeze the handles.  
It's a great tool!

Write for prices and details

**THE BURGAN CORPORATION**

9 So. Clinton St.

Chicago, Ill.



Let us  
send our  
profit-  
boosting  
plan.  
It's Free.

**free**  
write for  
your copy

**The Book  
'AIR PROFITS'**  
Shows how to get  
more work out of  
an air compressor.  
How to use com-  
pressed air for  
many pay jobs.

**BRUNNER MFG. CO.**  
UTICA NEW YORK

**BRUNNER**  
AIR COMPRESSORS

**The Original  
Bosch**

Franchise details for selling ORIGINAL BOSCH  
Automotive Equipment will be sent to any Dis-  
tributor, Dealer or Service Station on request.

**ROBERT BOSCH MAGNETO CO., Inc.**  
109 West 64th Street New York, N. Y.



ORIGINAL  
BOSCH units  
bear the full  
name, Robert  
Bosch, and  
the trade  
mark shown  
at left. These  
are the iden-  
tifications of  
Bosch qual-  
ity—famous  
since 1887.

Two Hones in One

**HALL HONE** \$35.  
at your  
Jobber's

Solid Pressure — Spring Pressure

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##### C. L. PARKER

Ex-Examiner U. S. Patent Office  
Attorney-at-Law and Solicitor of Patents

McGill Building, Washington, D. C.  
Patent, Trade Mark and Copyright Law

#### BUSINESS OPPORTUNITIES

FOR SALE—Battery and electrical service  
station in a Rocky Mountain state. Place has  
paid over \$8,000 in last three years. Will re-  
quire about \$3,500 cash. Box 6288, Motor Age,  
5 S. Wabash Ave., Chicago, Ill.

To locate business opportunities  
To sell, rent, exchange or buy  
To find men or employment

**THE CLASSIFIED DEPARTMENT  
WILL HELP YOU**

#### CLASSIFIED ADVERTISING RATES

Ten cents a word is the rate for all  
undisplayed advertisements set solid,  
regular want ad style; minimum charge  
\$1 an insertion. All capitals, 12c a  
word; all capitals, leaded, 15c a word.  
Payable in advance.



## Owners Are Grateful for Keystone Every Day They Drive Their Cars

There's a "Thank You" in every care-free mile of KEYSTONE sure protection for motor-meter or ornament. The driver never tires of the best-looking Cap in America, ever before him.

Last year the KEYSTONE Christmas package was extremely popular. This year, every Dealer should sell this Gift Suggestion that brings year 'round gratitude.

Absolutely rust-proof and theft-proof, the efficiency of KEYSTONE Caps, in every mechanical way, is more important now than ever before.

KEYSTONE remains the most beautiful and practical radiator dress on the market, and now this Holiday package for mid-winter trade is a sure sales stimulant. Any or all KEYSTONE Caps can be had in this Gift Box, ready now for shipment in all quantities.

### Prices are as follows:

Eagle . . . \$6.00	Eaglet . . . \$4.00
(Including Initial or Emblem Plate)	
Senior . . . \$4.50	Junior . . . \$3.50
(Ball-End, Bar-Type Cap)	
Senior De Luxe, \$8.50	
Junior De Luxe, \$7.50	
(With Genuine Onyx Balls)	

Dealers and Jobbers are requested to order  
Holiday requirements as early as possible

The NORLIPP COMPANY, 568 W. Congress St.  
Chicago, Illinois

# KEYSTONE

## SELF-LOCKING RADIATOR CAPS

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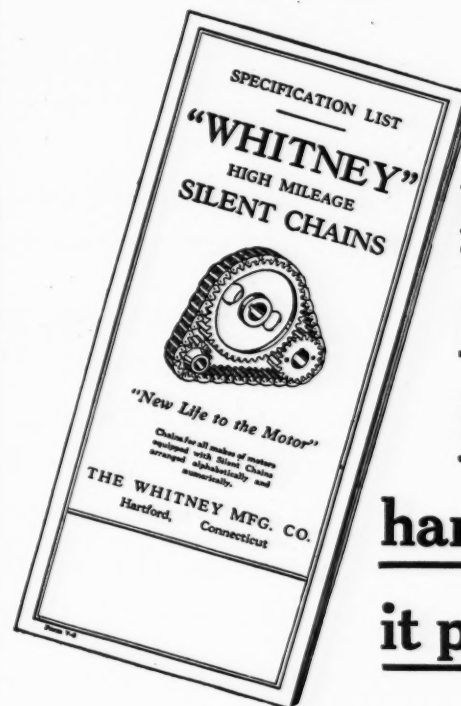
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## MR. REPAIRMAN



**Keep  
this  
book  
handy—  
it pays!**

## EVERY TIME YOU REPLACE WITH "WHITNEY" SILENT HIGH MILEAGE CHAINS

You make one more satisfied customer.

He will not need another timing chain, of course, but he will not forget you when he needs other service.

**Ask Your Jobber or  
Mail Us the Coupon Below**

**The Whitney Mfg. Co.**  
Hartford, Conn.

I Want that book on chain specifications.

Name.....

Address.....

☐ Service Station ☐ Fleet Owner ☐ Parts Jobber



# There's plenty of room *at the top* ~ ~

20,000,000 people in the United States are using fan belts—

And they are not all GOOD fan belts—far from it. Handsome profits can be and are being made by thousands of dealers with Farran-oid, for it is a GOOD fan belt. It STAYS sold—brings the customer back for another like it—BUILDS trade.

It grips the pulley and does its work as the automobile manufacturer wants it done. It won't stretch. It is long-lived. It is heat, oil and water-proof.

It pays to sell the BEST in any line. Push Farran-oid products—their unvarying quality is a sure business builder.

*Two types—Herringbone Flat Endless and  
Dual-Flex Molded Cable V-type*

THE FARRAN-OID COMPANY  
Akron Ohio

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## **Farran-oid** *Products*

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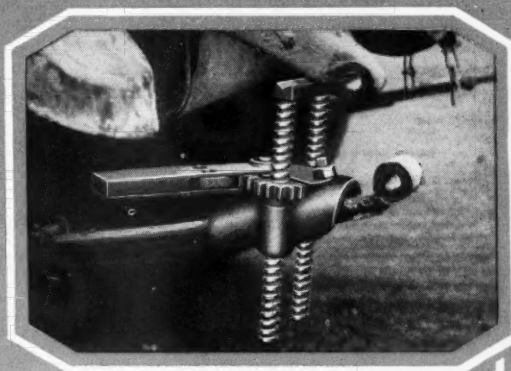
Fan Belts	::	Radiator Hose	::	Garage Air Hose	::	Car Washing Hose
Blowout Patches	::		::	Tube Patches	::	Ford Floor Mats

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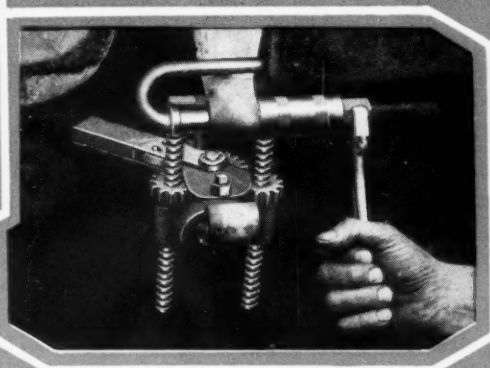
# And Now—

## Blue Print Cuts Bolt and Bushing Installation in Half

Spring  
Bolt  
Jack



—with these  
new Tools



Bushing  
Tool

**A** GAIN Blue Print Engineers blaze the trail to more profitable business for the service station and repair shop!

Long recognized as the pioneers in the development and production of high quality chassis Bolts and Bushings for both original equipment and replacement trade, Blue Print Engineers have now perfected methods for installing which cut time and cost in half.

With the B/P Spring Bolt Jack and B/P Bushing Tool shown here, Bolt and Bush-

ing renewal is a quick, easy, profitable operation which can be sold to every car owner who wants the squeaks and rattles taken out of his car. With these tools the saving in labor time will enable you to reduce your charge for the job and still make a legitimate profit. Get these tools and get the Bolt and Bushing business in your locality.



Blue Print Bolts and Bushings are made to the blue print specifications of the car manufacturer and are exact duplicates of original equipment.

### "B/P" Spring Bolt Jack

Quickly relieves the spring tension, and makes bolt removal quick and easy. No need to tie up a chain hoist. Simply slip the jack between the frame and the spring and a few strokes of the handle relieves the tension—and holds the spring eye in proper position until the new bolt and bushing are in. Fits front and rear springs on practically all cars. May also be used for installing snubbers or for lubricating chassis bearings where pressure fails to raise weight of car. Price only.....

**\$5.00**

### "B/P" Bushing Tool

—removes the old bushing and puts in the new one at the same time. A few turns of the wrist does the work. No time wasted in pounding and cussing. Even the tightest bushing comes out in a jiffy. Simply slip the new bushing on the rod and slip the rod through the spring eye. Then put on the cage and the nut. Turning the nut with a wrench forces the new bushing in and pushes the old one out into the cage. May also be used for king bolt, tie rod and piston pin bushings. Price only.....

**\$3.75**

### ASK YOUR JOBBER

These new tools, when shown recently at the N. S. P. A. Show in Chicago, were the hit of the Show. Get these tools in your shop and laugh at competition. Ask your Jobber for them or, if he hasn't them yet, write direct to us.

## The Fostoria Screw Company

Manufacturers of Blue Print Bolts and Bushings  
312 Blue Print Ave., Fostoria, Ohio

# Nothing is More Important to Dealer or Jobber!

By tying up with the AC line, dealers and jobbers are affiliating themselves not only with the most powerful organization in the industry, but with a line which insures them enormous sales possibilities now and for the years to come.

AC Products are nationally known:

**AC Spark Plugs** are used as equipment on over 148 makes of cars, trucks, tractors and engines.

**AC Speedometers** are furnished as equipment on more than 50% of the output of present day production of cars.

**AC Oil Filters** are equipment on more than 50% of the production of cars being equipped with oil filters.

**AC Air Cleaners** are sent out as equipment on more than 60% of the cars that are equipped with air cleaners.

AC equipment, increasing steadily from year to year, is building a tremendous replacement business which will carry on as long as automobiles are made.

AC Spark Plug Company, FLINT, *Michigan*

AC-SPHINX  
Birmingham  
ENGLAND

Makers of AC Spark Plugs—AC Speedometers  
—AC Air Cleaners—AC Oil Filters

AC-TITAN  
Levallois-Perret  
FRANCE

**AC**  
SPARK PLUGS

**AC**  
SPEEDOMETERS

**AC**  
AIR CLEANERS

**AC**  
OIL FILTERS